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Huntington Paper Co. Organization Complete

Ralph M. Snell, of Agawam, Mass., Is President of New Company—Chester Division Mill of American Writing Paper Company Secured for Project—While Plans for Future Have Not Been Announced, Charter Provides for Manufacture of Paper and Special Chemicals Used In Paper Industry, and Also for Paper Converting

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., April 8, 1932.—Organization of the new Huntington Paper Company, Huntington, Mass., was completed here today. Ralph M. Snell, of Agawam, Mass., is president of the new company. He recently secured title to the Chester Division mill of the American Writing Paper Company from Choral Properties, Inc., a real estate holding company for the American Writing Paper Company, Inc. Mr. Snell is deeding the property to the Huntington Paper Company.

Frank A. Juckett, president of the Hurlbut Paper Company, South Lee, Mass., is vice president of the new company; Charles E. Derrick, a director of the Hurlbut Paper Company, is secretary and W. H. Upson, treasurer of the Upson Company, Lockport, N. Y., is treasurer.

Other directors of the Huntington Paper Company are: Charles A. Upson, president of the Upson Company, and George Rodney Wallace, president of the Fitchburg Paper Company, Fitchburg, Mass. George Gammie, formerly superintendent of the Rolland Paper Company, St. Jerome, Quebec, is also interested in the Huntington mill.

Mill and Machinery In Good Condition

Plans for the future of the Huntington mill have not been announced. Its charter provides that it may engage in paper manufacturing, converting, and the manufacture of special chemicals such as are used in the paper industry. The mill and machinery are said to be in good condition and since its recent purchase by Mr. Snell, only such reconditioning has been effected as was necessary to preserve the property in good order. The purchase includes the land, building, equipment and power rights. One of the assets is an excellent water supply. The old Chester papers were rated high among nationally-known lines in their time.

At the annual meeting of the Hurlbut Paper Company in South Lee yesterday, Ralph M. Snell was elected vice president of that company. He will be research and technical director of the company and will edit a publication of interest to the paper trade, somewhat after the order of "Superior Facts," which he founded and conducted for the Paper Makers Chemical Corporation up to the time of his retirement from that corporation at the start of this year. For the present, however, Mr. Snell will devote most of his time to work at South Lee.

Wide Experience of Ralph M. Snell

Ralph M. Snell was born in Marysville, Ohio, and started his life work with the Indiana Paper Company, South Bend, Ind., at the age of 14. He came East in 1893 and worked three years for the Worthy Paper Company, making his home at North Agawam, Mass., where he has since lived. Later he became associated with the old Chemical Paper Company, Holyoke, continuing there for four or five years. In his connection with these mills he acquired a general experience in the problems of paper manufacturing and in 1904 he became superintendent of the Niagara Paper Company, Lockport, N. Y., a post he held for two years. Mr. Snell was one of the incorporators of the Upson Company and is still interested in that concern. In 1906 he went with the Paper Makers Chemical Company at Holyoke, Mass., starting as a service man and advancing to the office of vice president in charge of Eastern and foreign plants.

Col. B. A. Franklin Resigns

WEST SPRINGFIELD, Mass., April 12, 1932.—Col. B. A. Franklin, vice president of the Strathmore Paper Company and vice president of the Rising Paper Company, resigned this past week and will continue business as an active industrial engineer, opening up offices in Springfield around July 1, when his resignation with the Strathmore Paper Company takes effect. He became connected with the company in 1909 and was made vice president in 1911. Colonel Franklin has been active in various civic enterprises, is a member of numerous engineering and other technical societies and is vice president of the Association Industries of Massachusetts. He has been successively major, lieutenant colonel, and colonel in the ordnance district. He is a member of the Mayasset, Army and Navy, and University clubs, among others.

Pennsylvania Paper Mills Curtail Operations

Following Spurt of Activity During March, Manufacturers Slow Down Production, Due to Slackened Consumption—Recent Price Advances in Wrapping Paper and Bag Markets Holding Up Well—Demand for Paper Board Listless

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 11, 1932.—While the local trade experienced improvement throughout March, the April record to date has not been as pleasing. Returning spotty demand that marked the early weeks of the current year forebodes uncertainty and the trade does not anticipate continued improvement on larger scale until the present business situation shows surer evidence of a turn for betterment. There is a brighter spot in the present paper market in so far as the wrapping paper and bag division is concerned in the advance of prices during the last two months.

Manufacturers in the Philadelphia district are slowing down operations after a spurt of activity in March. Paper stock and rags are in the doldroms and there is a large amount of the cheaper grades available, although the better grades of old paper are scarce. The returning dullness in the paper board industry has retarded sales of the cheaper paper stocks, while roofing manufacturers are sparse buyers of low priced rags owing to unusual dragginess and in some mills a complete closing down of operations.

Superintendents Complete Convention Program

An announcement of the complete program of the April 16th convention of the local mill superintendents, to be held in Reading, Pa., at the Abraham Lincoln Hotel, was sent to the members last week. The annual meeting of the Pennsylvania, New Jersey and Delaware Division of the American Pulp and Paper Mill Superintendents Association will be diversified in its program of social and business sessions, and particularly from the angle of mill economies and modern operations and methods to be expounded by the speakers. Registration takes place on Friday and on Saturday there will be opened the program of business and entertainments which includes a tour of Reading and its environs, dinner and luncheon with vaudeville entertainment and dancing to follow the banquet on Saturday evening. Mayor Herbert Ermintrout, of Reading, will welcome the mill superintendents in the opening address, while the trade talks will be initiated by C. H. R. Johnson, of the Downingtown Manufacturing Company, under the title of "Extractor Rolls for the Cylinder Machines"; to be followed by another discussion on "Dandy Rolls and Wire" by R. N. Watts, of the Cheney, Bigelow Wire Company; and then on "Safety First as Applied in Paper Mills" by John Lundrigan, industrial superintendent of the International Paper Company. After luncheon service, there will be other trade topics on "Rubber Rolls," by W. E. Brown, sales manager of the American Wringer Company; with a "Question Box" in open forum presided over by James Garfield Ramsey, of the Jessup & Moore Paper Company, in which problems on mill operations and technicalities will be introduced and discussed pro and con. The speaker at the banquet in the evening on Saturday is to be Charles E. Roth, of the Reading International Business Men's Club. Mr. Ramsey will be toast-master. Singing and dancing in the Crystal Ball Room will close the program.

Wholesale Waste Merchants Banquet Postponed

Owing to the present business depression and the desire of the officials and members of the Philadelphia Wholesale Waste Merchants Association to hold the annual banquet at a more propitious time, the yearly social gathering of the organization has been postponed indefinitely. The meeting was scheduled to take place on March 18 but the officials awaited further approval of the members before postponing it until last week, when it was announced that a decision had been reached to postpone the banquet until business conditions warranted. President Thomas A. Kenny will call a meeting of the wholesalers of waste materials later in the season for further action and arrangements.

Paper Jobbers To Hear of Price Cutting Evils

The recently organized Philadelphia Paper Jobbers Association will hear of the "Evils of Price Cutting" in a talk to be given at the meeting on Wednesday at the Elks Club. The speaker is well known among manufacturers in the paper industry and in the consuming industries, having for many years been manufacturers' representative, with offices in the Drexel Building. The meeting will take place at 8 o'clock in the evening instead of the noon hour as formerly.

Hammermill to Conduct Campaign Here

Hammermill papers will be demonstrated to consumers in the missionary work of Harold Peckham, who opened last week a campaign in the Philadelphia district as direct mill representative working with the distributors in the Quaker City. The mill agent will remain in the Philadelphia territory contacting the consumers on behalf of the distributors—D. L. Ward Paper Company, Thomas W. Price Company, and Paper Merchants, Inc., for the next two weeks.

Raymond & McNutt Feature Strathmore Weddings

Preparatory to the coming June bridal season Raymond & McNutt, fine paper distributors, Sheridan Building have began a drive on the Strathmore Paper Company's wedding announcements and have sent to the engravers and stationers an attractive window display containing three easels. The center piece shows the bride in full length design while the two side easels contain the engraved specimens of wedding announcements made by the Strathmore Paper Company.

Medal Art Covers Added by Raymond & McNutt

Raymond & McNutt, distributors of fine papers and specialists in announcement stocks, have added to their lines the Medal Art Cover papers made by the Marvellum Company, of Holyoke, Mass. This latest cover paper of the Marvellum line is made in six colors, brushed over in bronze to create a metallic effect, making an artistic and attractive cover paper. The full line has been stocked.

J. E. Purves Made Manager of United Paperboard

J. E. Purves, who has been associated with the local offices of the United Paperboard Company, with sales quarters in the Bourse, has been made manager of the Philadelphia branch. He succeeds J. L. Nelson, who has been in charge of the local sales for the past few years.

Edward M. Smith Passes On

Edward M. Smith, for more than 45 years associated with the Thomas W. Price Company, 503 Ludlow street,

passed to his rest last week after four years illness. He was 78 years of age and had been linked with the Price company as credit manager and assistant treasurer for almost half a century. Although he continued on the roll of the company he had not been active in management for the four years of his illness. The members of the firm and the staff attended the funeral services at his home, 6518 North 13th street.

Miriam Seidenfeld Returns from Honeymoon

The former Miriam Clair, whose marriage to Dr. Morton Seidenfeld, of San Francisco, took place last month, has returned from a honeymoon in New York and Atlantic City, to her duties as secretary of the Progressive Paper Company, in which she is associated with her brothers at 134 North Delaware avenue. The newlyweds will reside at 4111 Walnut street, while Dr. Seidenfeld continues a post graduate course in Pediatrics at the University of Pennsylvania, preparatory to becoming a specialist in children's diseases.

Passing of A. K. Housekeeper

Trade condolance is extended to Miss Elizabeth Housekeeper, for the last twelve years manager of the credit and office department of the S. S. Garrett Company, 259 South 3rd street, on the passing of her father, A. K. Housekeeper, a retired druggist. Mr. Housekeeper was 79 years of age and suffered from infirmities of age for several years.

Frank Winslow Attends Champion Opening

Frank Winslow, Philadelphia district paper mill equipment manager, of the General Electric Company, returned to his desk last week after attending the opening of the new plant of the Champion Fibre Company at Canton, South Carolina. The opening of operations at the new mill took place two weeks earlier than anticipated. The paper making machinery was built by Pusey & Jones and winders by the Moore & White Company, of this city; while the motors and electric equipment constructed by the General Electric Company provide the Champion company with one of the largest and most modern paper making units in the world. The machines produce a 240 inch book paper.

Get Play-Day Without Wage Cut

A press dispatch from San Francisco says: "Having given his employees two pay increases in the past year 'because business is so good with us,' Rodman C. Pell Jr., president of the Pelican Paper Company here, announced today the establishment of an alternate five-day week in his plant, with no cut in wages.

"The first increase was granted last May. There was another in January. Beginning the first Saturday in May half of his employees, Mr. Pell said, would get the day off. The next Saturday the other half will have the day to themselves.

"Among other recent innovations by Mr. Pell is the serving of tea to his employees every afternoon.

"'Business is better, at least with us,' his associates said. 'But we believe that condition is general throughout the industry here.'

"In a letter to the employees announcing the change, Pell said:

"'Effective the first Saturday in May half of all employees will be allowed to play while the other half works. The Saturday following those who played over the previous week-end will work, giving the others a chance to play.

"'This schedule will end on the last Saturday in August. It will in no way affect vacations or salaries.'"

National Association Augments Staff

Chester A. Spaulding has been appointed assistant secretary of the National Paper Trade Association of the United States. He will assume his duties on May 1. Mr. Spaulding has been for several years manager of the Wrapping Paper Department of the Carpenter Paper Company of Iowa, Des Moines, who have released him with regret, with assurance of their support and with confidence of his success in a broader field.

Chet Spaulding has been one of the most active and helpful association workers in recent years. He has a wide acquaintance and is entirely familiar with all the affairs of the association through service on the Board of Directors. For years he also served as a member of the Survey Committee of the Wrapping Paper Division, completing a year ago his term as chairman of that committee, which was notable for extraordinary activity and accomplishment. No one is more familiar with the Uniform Cost Accounting System or better able to explain and promote it than he. He is also thoroughly experienced in wrapping paper lines and well acquainted with the manufacturing branch of the industry.

Mr. Spaulding will undoubtedly prove of great value to the association, and his services and advice will be exceedingly helpful to the members individually. His time, for the present, will be devoted largely to field work and his assistance will be available for local associations in conducting their activities and meetings and especially in personal cooperation toward increasing their membership. For the present, at least, he will continue his residence at 660 32nd street, Des Moines, Iowa.

Increases Production at Corinth

CORINTH, N. Y., April 12, 1932.—A decision was arrived at last week by officials of the International Paper Company to place in effect a daily working schedule of six hours besides providing four separate shifts instead of three as has been the custom. The new arrangement will necessitate the employment of additional workers and it is understood that those recently laid off will be given preference. Orders transferred from the branch at Turners Falls to the local plant have resulted in greatly increased production and some departments are running overtime.

Announcement was also made that officials feel that some aid in the form of employment should be given those workers affected by the suspension of operations at Turners Falls and because the orders were shipped to the branches at Livermore Falls, Me., and Corinth it is planned to render help as far as possible. Plans are under way to recall the idle workers here first caused by the recent suspension of work on three machines. These machines have undergone repairs in anticipation of increased output and one has already been started up again.

Reports of the new arrangement brought a rush of applicants for jobs to the local mill. It was learned that the salaries of only the highest paid employees will be affected.

G. Elmer Emigh Goes To Carthage

CARTHAGE, N. Y., April 12, 1932.—Announcement is made of the appointment of G. Elmer Emigh, of Camas, Wash., as superintendent of the National Paper Products Company in this village. He arrived here last week and has already assumed his duties. For the past several years he has been identified with mills of the Crown-Zellerbach interests on the Pacific Coast. He succeeds Napoleon Rigabar, who recently resigned after a lengthy term of service.

Big News Print Amalgamation May Take Place

Merger of Consolidated Paper Corp. and St. Lawrence Paper Corp. Subject of Current Rumors —Properties of Both Companies Located in Same Section of Country, Which Would Permit Concentration of Operations—Output of Companies Diversified

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 11, 1932.—Reports are current here that the near future may see the amalgamation of two of the larger news print companies, Consolidated Paper Corporation and St. Lawrence Paper Corporation. These two organizations are both parties to the negotiations for a general merger of news print companies in Canada and it is thought that their amalgamation would clear the way for the consummation of the larger plan.

The merger, it is pointed out, would be a logical one, as the properties of the companies are located in the same part of the country, thus permitting concentration of operations, a step which is of paramount importance under existing conditions in the news print industry. In addition, the capital set-up of the two companies is such that merger terms would not constitute a difficult problem. Another factor is that both Consolidated and St. Lawrence have diversified lines of production apart from their news print interests.

Meanwhile, the efforts of the committee which has for some time past been working on a plan for a general merger have, it is understood, been productive of beneficial results, a mass of worth-while information bearing on the many problems of production and distribution faced by the news print operators having been compiled.

Even if, as seems likely, the comprehensive merger, towards the consummation of which the work of the committee is directed, cannot be worked out for some considerable time because of the varied interests and divergent capital structures of the companies involved, the information already obtained will prove of very material value to the news print companies in their problems of production and distribution. Costs will be an all-important factor in operations in this industrial field, as there is little, if any, indication that market conditions are likely to show any worthwhile improvement within the next year or so. The latest price cut made early this year was indicative of the trend in this connection, and it could hardly be expected, in view of existing conditions, that news print prices could be raised even if the big merger were brought to fruition.

By reason of the serious decline in news print profits during the past few years, mill costs and distribution expenses have been so closely scrutinized by all operators that any further economies of note are well-nigh impossible. The only remaining solution, in the absence of any prospects for a worthwhile recovery in consumption in the near future, would appear to be the bringing down of active mill capacity to a level more closely approximating volume of consumption. This fact is fully recognized by news print executives, and, as past experience has proven the inefficacy of any measures for the allocation of tonnage and regulation of output so long as there are, as at present, five major operators fighting for business. The conclusion is, naturally, that mergers are necessary if further serious developments in the industry are to be averted.

Paper Mill Union Opposes Wage Cut

At a joint conference of the Paper Mill Union, held in Montreal during the week, a resolution opposing any further reductions in wages was adopted. Represented at the conference were the paper makers under the presidency of Matthew Burns, of Albany, N. Y.; the pulp workers headed by John P. Burke, of Fort Edward, New York; the machinists with James Somerville, vice-president; electricians with Ernest Ingles, of Hamilton, Ontario, vice-president, and the engineers headed by John Healy, of Toronto and vice-president of that group. Over 100 delegates, representing employees in paper mills in Maine, Manitoba, Massachusetts, Ontario, New Hampshire, Quebec, New York and other sections of the United States and Canada attended.

It was pointed out at the gathering that last year these workers received a reduction in wages of from five to ten per cent. The various companies in Canada and the United States are now proposing a further reduction of ten per cent. Such action is opposed by the various branches of workers. Acting as spokesman, John P. Burke, president of the pulp workers' sections, told the press: "We are opposed to any further wage cut. We feel that our pay has been cut sufficiently."

Quebec Pulp & Paper Report

The annual report of the Quebec Pulp and Paper Corporation shows that for the year ended December 31 last, net revenue, derived mostly from bond investments, amounted to $36,216 as compared with a net loss of $44,292 in 1930. After deduction of general expenses there was an operating profit of $7,704, against an operating loss of $78,572 in 1930. After deduction of miscellaneous charges, including fixed charges and expenses of non-operating plants, the consolidated net loss on the year was $201,646, a reduction of $62,359 from the loss sustained in 1930. The company's plant remained closed down during the year, so no provision has been made for depreciation. The main source of revenue is now the company's investment of $704,000 in Dominion of Canada bonds.

In his report to shareholders, the president, A. Stewart McNichols, comments as follows:

"During the year under review, market prices for ground wood pulp have been forced down due to declining consumption and intensive competition; this situation has been mainly brought about through an installed grinder capacity, both in Canada and Scandinavia, substantially in excess of North American and European requirements.

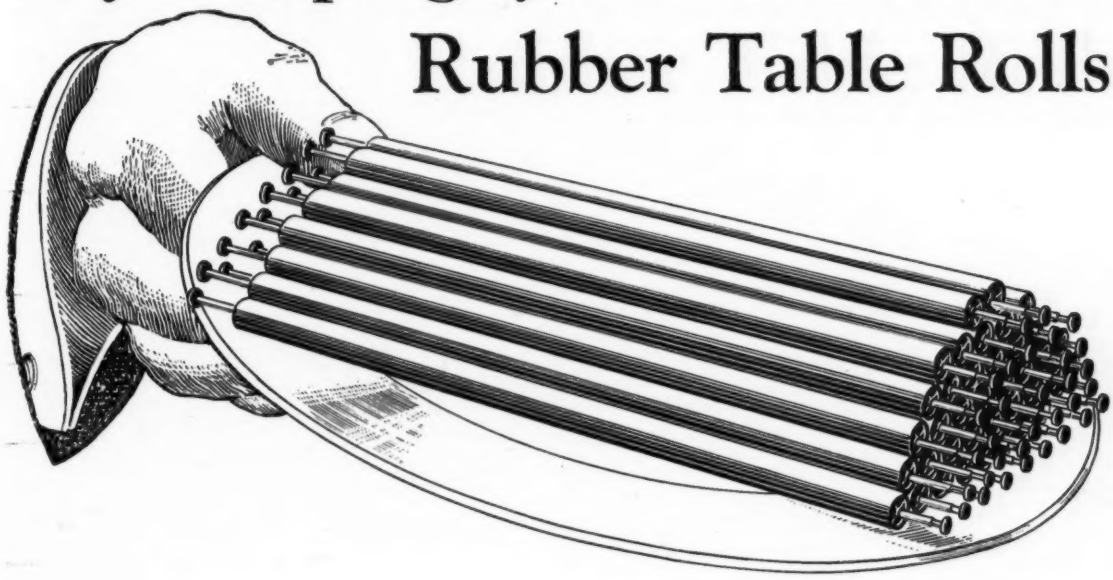
"Though your company owns valuable assets, which are free from encumbrance, it is felt that economic conditions will have to show material improvement before your directors' efforts to solve the company's problems can bear fruit."

Cold Aids Lumbering Operations

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., April 12, 1932.—The recent spell of cold weather proved of great aid to lumbering operations in this section and everything is expected to be in readiness for the annual spring drives. A large contracting firm from this village has succeeded in cutting several thousand tons of pulp wood which will be floated down the Raquette River about the middle of next month to the mills of the Raquette River Paper Company. This is expected to be the last drive on the river this season.

Try a helping of TENSILASTIC Rubber Table Rolls



They'll serve you better . . . they'll last longer . . . and they'll cost you less in the LONG RUN

Put an end to table roll troubles, to whip, distortion, poor sheet formation, excessive wire wear, frequent replacements, expensive maintenance.

Install Tensilastic Rubber Table Rolls. Other mills have . . . and found it good business. Good business when business is good and *extra* good business when production details must be watched with a weather eye.

Take, for example, the Canadian mill which was in the habit of replacing brass table rolls on its high speed news machine every four years. Two years ago they tried Tensilastics. That installation is as fresh and true today as the day it was put in service. Not a suggestion of needing grinding; not a sign of a quiver under the wire. Quoting the man in charge, "They look as though they'll last forever".

Rolls that whip are hard on sheet formation. *Tensilastics don't whip.* They keep their smooth balance for their entire long lifetime. *Pitch won't stick to them. Acids won't corrode them.* Water acts as a lubricant. And they have a faculty of drawing *more* water through the wire.

The first cost of Tensilastics is higher than that of metal rolls. But they outlast metal rolls many, many times. After years of service, should they show signs of wear, they can be easily resurfaced for another long tour by grinding. And when you begin to think about replacements, you can have the original shells recovered and secure the equivalent of a new set at a fraction of the initial price. A Tensilastic installation is a sound, dividend paying investment,—not just an item of overhead expense.

Install a trial set of Tensilastic Rubber Table Rolls. Put them through their paces, critically. You'll revamp your ideas of table roll performance. And remember, too, that that same high quality of Tensilastic performance may be had in press, couch, breast, stretch and carrier rolls.

Write for your copy of the interesting booklet "TENSILASTIC and What It Means"

American Wringer Co., Inc.

Rubber Roll Specialists for More Than 40 Years

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TENSILASTIC RUBBER ROLLS

T27

Nekoosa-Edwards Reforestation Program

Operations to be Expanded This Season With Planting of Four Million Trees—Nearly Six Million Trees Are Now Growing to Supply Future Requirements of Company's Pulp Mills —Precautions Taken to Prevent Any Losses by Fire

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 11, 1932.—Reforestation operations of the Nekoosa-Edwards Paper Company, Nekoosa, Wis., will be expanded this season with the planting of 4,000,000 trees. Three million Norway, Scotch, jack and white pine will be set out on the lands in Wood County, where the mills are located, and an additional million in Ashland County, much further north. About 100 men will be employed until the work is completed. Since the company started its operations in 1926 with the planting of 75,000 trees, the acreage has been expanded until nearly six million trees are growing to supply the company's pulp mills in the future.

Additional men will build twelve miles of fire lanes, to be added to 43 mills already built. Every precaution is being taken to prevent any losses by fire, and as a result only 38½ acres have been burned over in the entire time since the project was started. The work is being done under direction of F. G. Kilp, company forester.

The total acreage of forest crop land operated by public and private interests in Wisconsin is now 760,894 acres, according to the state conservation commission. Since January 1, 1932, a total of 331,831 acres has been entered under the law for tree growing, indicating a marked stimulation in reforestation efforts to save the pulp wood and timber supply. Private owners entered 300,373 acres and counties 460,521 acres, out of the total registered to date.

New Dam for Fox River

Construction of a new government dam on the Fox River at Little Chute, Wis., is to be started April 20. The Combined Locks Paper Company's mill is located at this point. The low bid of $55,942 submitted by C. R. Meyer & Sons Company was accepted by the government for the work, which is to be completed in 230 days. The dam will be 562 feet long, with nine gates in the 231-foot sluice section, and there will be two spillways, one 221 feet long and the other 109 feet long. Concrete and steel will be used in construction. An old wooden dam 691 feet long is to be removed after being used as a coffer dam during construction.

Menasha Income Tax Ruling

The Wisconsin Tax Commission has ruled that state-income taxes must be paid on profits of $803,410.51 accruing to the Menasha Printing and Carton Company as a result of an exchange of its assets and properties for stocks and bonds of the Marathon Paper Mills Company. This involves the carton division taken over by the Marathon company at Menasha, Wis.

An agreement was ratified by the Marathon stockholders on August 31, 1927, and approved by the Menasha company September 24, 1927. The Marathon company gave 9,582 shares of its common stock and its first mortgage 5½ per cent bonds, series of 1927, in a principal amount equal to $1,000,000 on a 6 per cent basis. A check for $30,030.50 also was given to the Menasha company.

The Menasha company claimed the check or cash payment was not part of the consideration received for its assets, but was payment of interest under terms of the contract. It was therefore claimed that the transaction was not subject to assessment of state income tax under a section of the statutes which recognizes "no gain or loss" where property is exchanged in a reorganization solely for stock or securities.

The tax commission ruled the cash payment was not interest and pointed out that the Menasha company did not consider it interest in filing its income tax returns. Profits of the transaction, the commission ruled, were taxable because the Menasha company's liabilities were assumed by the Marathon company and its bonds and preferred stock were redeemed with cash advanced by the Marathon company.

Profits of the transaction were computed by totalling the par value of $1,038,000 in bonds, the market value of 9,582 shares of stock and $30,030.50 in cash and deducting from the total the net cost of the properties sold.

News of the Industry

"Open house" to the people of Kaukauna, Wis., is contemplated by the Thilmany Pulp and Paper Company when its new bag mill is completed and the machinery moved back to Wisconsin from its present bag mill at Waukegan, Ill. Foundation walls for the plant have been completed and steel is being placed for the super-structure. It is expected to be ready for occupancy about June 1.

D. H. Green has resigned as general manager of the Wisconsin Tissue Mills, Menasha, Wis., to become active in reorganization of the Prairie State Paper Mills, Joliet, Ill., makers of wrapping paper. Mr. Greene has been manager of the Menasha mill for six years and plans to continue his residence in Menasha for several months. His successor has not been named.

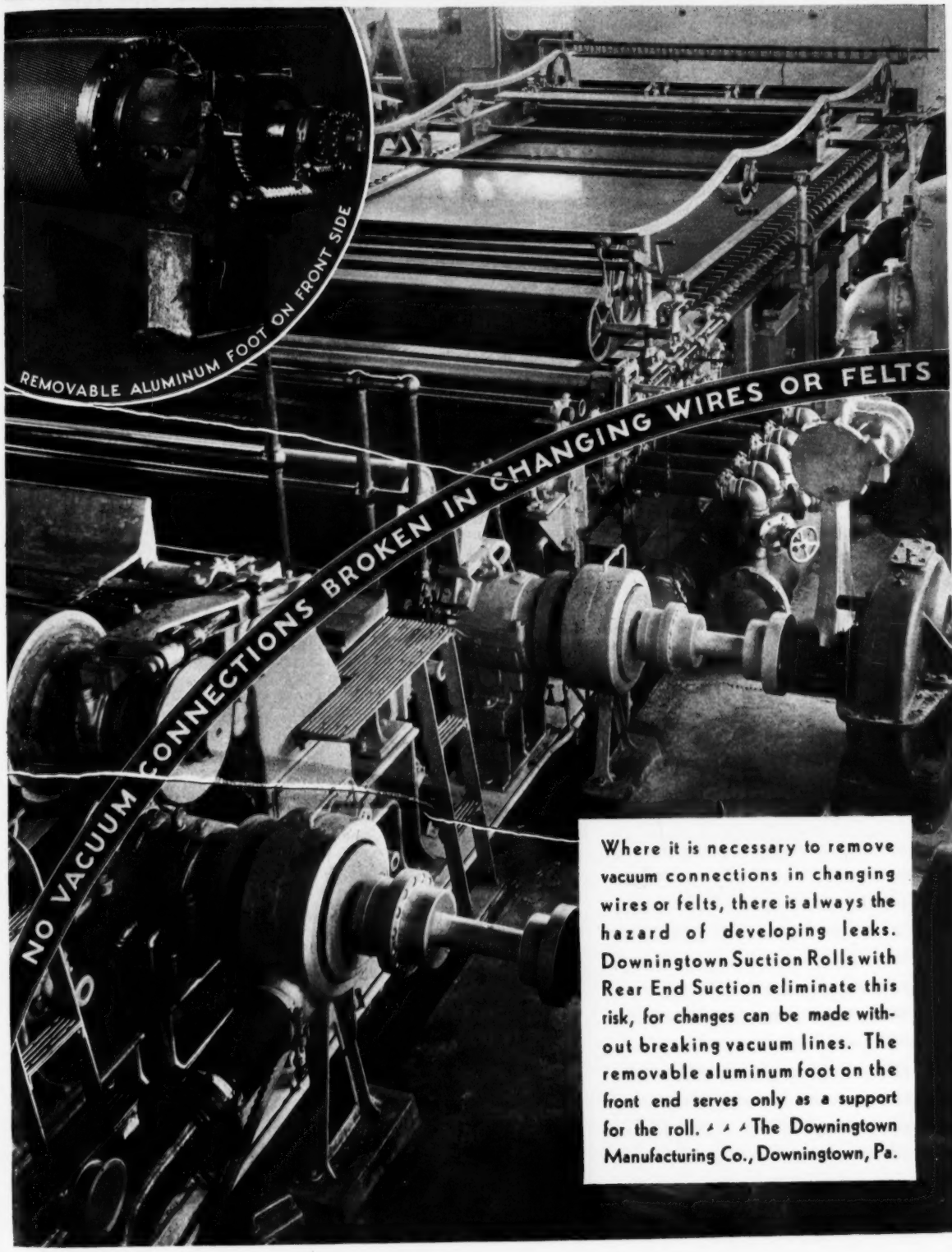
Charles Kranzusch, employed by the Kimberly-Clark Corporation for fifty years, was honored by officers and employees at a meeting at Kimberly recently. He was presented with a gold watch. Talks were given by F. J. Sensenbrenner, president, Ernest Mahler and S. F. Shattuck, vice presidents, and by J. S. Sensenbrenner, S. R. Stilp and J. T. Doerfler. Mr. Doerfler is manager of the Kimberly mill, where Mr. Kranzusch has worked in the book mill department. He is an expert on paper machines. Thirty-eight employees who have been with the company for more than 25 years were present.

Series on Industrial Lubricants

Beginning in April, the Standard Oil Company (Indiana) will publish each month a technical monograph on the lubrication of some type of equipment. The company states that it has found that many plant men have expressed the desire to have specific authoritative information on the proper lubrication of various types of machinery.

The plan is to go through the whole line of the more important industrial equipment, making each lubrication discussion simple, brief and informative. No recommendations for any particular brands of lubricants will be made. The company feels such statements might savor of prejudice which will defeat the purpose of giving unbiased technical information. Requests for these monographs should be addressed to the technical division, 910 South Michigan avenue, Chicago.

DOWNINGTOWN



Where it is necessary to remove vacuum connections in changing wires or felts, there is always the hazard of developing leaks. Downingtown Suction Rolls with Rear End Suction eliminate this risk, for changes can be made without breaking vacuum lines. The removable aluminum foot on the front end serves only as a support for the roll. ▲ ▲ ▲ The Downingtown Manufacturing Co., Downingtown, Pa.

Chicago Paper Market Only Moderately Active

Demand for Various Standard Grades of Fine Paper Irregular—Book and Cover Papers Listless—Kraft Wrapping Paper Holding Firm, Despite Sluggish Request—Paper Board Division Marking Time—Paper Stock Continues Quiet

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 9, 1932.—The nervousness with which business is now afflicted and the threats of increased taxation, coupled with any number of rumors—mostly false, has had its counterpart in the Chicago paper industry. Merchants have a tendency to feel that, fundamentally, things are better. This basic start has not, however, shown up in sales.

The kraft market is said to be holding firm although demand is sluggish in this section. The ground wood market is reported to be as definitely "off" as it has been for many years and the news print market is reported to be not much better. No seasonal "spurt" has been evidenced as an aid to the newspaper and publication market. In some grades of fine papers reports are more encouraging although even here conditions are very spotty and even the more favorable news is characterized as "nothing to write home about."

Books and covers are unchanged over last week with the possibility that any report given would indicate a still more dull market. The board market is marking time. Waste papers are equally quiet. The entire market is in a position to be immediately receptive to the first signs of business improvement. There is the encouraging sign too, that the paper business is no worse off than most other lines of industry and better than some by a substantial measure.

Packaging Exposition Successful

The men behind the successful Second Packaging Exposition held in Chicago in March were gratified this week to learn of the report of G. K. Browder, general manager of the Paperboard Industries Association, given at the March meeting of that organization. Mr. Browder said "The Second Packaging Exposition in Chicago was well attended by manufacturers of packaging supplies, including boxes, wrapping materials, etc. Many buyers were in attendance. In general, the exposition seemed to be quite a success, as it offered a splendid opportunity for displaying attractive packages and it was quite educational in that it served to make people more package minded. The Package Clinic was a feature. Member organizations represented at the Exposition included Container Corporation; Dennison Manufacturing Company; J. L. Ferguson Company, Hinde & Dauch; International Paper; Interstate Folding Box; Morris Paper Mills; J. L. Morrison Company, Inc., National Metal Edge Box; Owens-Illinois Glass Company; Richardson-Taylor Globe; Riegel Paper; and Sealright Company, Inc."

Chicago Paper Association's Activities

D. F. Peck, chairman of the board of the Chicago Paper Association, provided the news at the March 27 meeting of that organization when he passed out a crate of Florida oranges to all members present. The president of the Hanchett Paper Company has just returned from his annual Florida vacation jaunt and did not, evidently, forget the boys back home. Mr. Peck also gave a statement indicating that, in his opinion, business was slowly recovering. He commented upon the improved banking situation and upon the depleted state of stocks on hand as indications that both sentiment and necessity were conspiring to bring about better times. The association also voted to indefinitely postpone the "open house" meeting formerly scheduled for the last week in April. The next regular meeting will be held on Tuesday evening, April 12.

Writing Paper Manufacturers to Meet

The Writing Paper Manufacturers Association will hold its next regular meeting in Chicago on Tuesday and Wednesday, April 12 and 13. All meetings will be held at the Blackstone Hotel. Arrangements and program will be under the supervision of Emmet Naylor, secretary of the association. Because of the central location and the important business to be discussed it is expected that a large number of the members will be in Chicago for the two day session.

Salesmen Plan Golf Program

Ben Babbitt, Central Paper Company, is being diligently pursued and solicited to take the position as chairman of the golf committee of the Mid-West Division of the Salesmen's Association of the Paper Industry. Reports indicate that he will eventually surrender but he is not anxious to assume the many fold responsiblities connected with the job for which nobody, including past golf chairmen, can possibly blame him. Announcements pertaining to the summer golf program will probably be made at the next regular meeting of the association to be held at the Hamilton Club on Monday, April 11.

News of the Trade

The Standard Paper Products Company, 52 East 20th street, Chicago, has been organized to deal in various kinds of paper products in this territory. E. F. Oeser, J. Williams and O. T. Johnson are listed as the organizers and officers of the new company.

The Blunden-Lyon Company, Chicago, is meeting with success in the introduction of the new Glencoe Folding Enamel. The new paper comes in all regular sizes and weights and is furnished in White and India. It is reported a strong, durable and attractive paper at an unusually economical price.

This line, on the attractive cover of the latest of the Aetna Paper Company's series on Correct Bond, commanded attention: "As Correct as the Letters of Lord Chesterfield to His Son." An interesting little comment on Lord Chesterfield and his "Letters to his Son" and a firm tie-up with the correctness of Correct Bond "with its real rag content and genuine water mark, very nearly completes the story told by the direct mail piece. Some line drawings help considerably. The Correct Bond distributors here are Midland Paper Company, Moser Paper Company and Parker, Thomas & Tucker Paper Company.

At the western sales offices of the Eastern Manufacturing Company the latest of the Atlantic Bond series, "Building Business with Atlantic Bond" was in evidence. Eight sample letter heads—unusually attractive—were contained in the folder, each printed on one of the following Atlantic papers: Atlantic Bond, Substance 24; Ripple Finish, Linen Finish; Atlantic Cold Pressed Laid and Cream and Atlantic Bonds Blue, Grey and White in Substance 20.

NATIONAL USS

STAINLESS *and* Heat Resisting

PIPE AND TUBES

for the Paper Industry

NATIONAL U S S 18-8 Stainless and Heat Resisting Pipe and Tubes afford special resistance to the most familiar and most troublesome forms of corrosion encountered in the Paper Industry. In addition, and of no less importance is the improved strength at high temperatures and the protection from certain acids which characterize this scientifically made material.

While unusual care in manufacture, uniformity of structure and high tensile strength under all ordinary conditions are taken for granted in any NATIONAL Seamless Steel product, these newer alloy-steel pipe and tubes are designed to give still greater factors of safety and economy to meet the more rigid requirements of modern methods. NATIONAL engineers and metallurgists will gladly lend their aid in determining the best application of this material to any particular use in your plant. Correspondence is invited.

U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany

U S S 18-8 CHROME-NICKEL—U S S 17 CHROMIUM—U S S 12 CHROMIUM

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Minnesota Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & R. R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Paper Demand Fairly Satisfactory In Boston

Orders for Fine Writing Paper Received In Moderate Volume—Wrapping Paper Market Continues to Display Steady Trend, Despite Spotty Request—Box Board Situation Practically Unchanged—Some Paper Specialties Seasonally Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 11, 1932.—The volume of business among wholesale paper dealers in this market has continued fair, although trade has been somewhat spotty. Merchants, however, are hopeful that a normal amount of business will be seen in the coming months. They are keeping their sales staffs active. Printers are placing orders for paper for advertising purposes and fine writing paper is coming in for its share. In many cases purchasers are buying the lower-cost grades.

Financial conditions of municipalities that buy diplomas and such material from engravers are having considerable influence this year as to the price paid for merchandise. Something that looks well and can "get by" will meet requirements. A year ago engraving concerns could base their amounts of purchases on what they bought in 1930, but this year they cannot make an estimate in the same way. On account of the general business situation there are more pupils in the high schools than there were a year ago. In one high school last year there were 480 graduates. This year there are 522. A demand for a diploma case, made in book form, which has been used a great deal in the West, is developing in the East. Paper is used in the manufacture of these neat cases, and in some quarters orders are being received from various parts of the country. At the present time orders in sizable volume are being received for diplomas.

Box papers have been moving to some extent, particularly those for shoe cartons. Some new patterns are being put on the market. A number of wrapping paper houses have been doing rather well, although trade has been somewhat spotty. Certain paper specialties are in seasonal demand. There is little change in the box board situation. An average amount of business is being transacted. Values remain at the same levels.

Paper Stock Demand Better

In some quarters of the paper stock market there has been more activity. With a greater demand for overissue news, values have risen from .35 @ .40 to .40 @ .45 f. o. b. Boston. There has also been more call for old newspapers, and a consequent rise from .25 @ .30 to .27½ @ .32½.

In bagging, a few advances have taken place. No. 1 scrap burlap has advanced from .80 @ .85 to .80 @ .90, new burlap cutting from .90 @ 1.00 to 1.00 @ 1.25, and heavy baling bagging from 1.25 @ 1.30 to 1.25 @ 1.35. Some other grades have declined. Foreign gunny No. 1 has been marked down from 1.15 @ 1.25 to 1.10 @ 1.15, domestic gunny No. 1 from .80 @ .85, to .75 @ .85, scrap burlap from .75 @ .85 to .65 @ .80, scrap sisal from .90 @ 1.10 to .75 @ 1.00, and paper mill bagging from .60 @ .75 to .60 @ .70.

In new domestic rags there has been one slight rise. O. D. khaki has advanced from .03 @ .03½ to .03½ @ .03¾. New white shirt cuttings No. 1 have declined from .05¼ to .04½ @ .04¾, new white shirt cuttings No. 2 from .04 to .03 @ .03¾, new unbleached shirt cuttings from .05½ to .04½ @ .05¼, and corduroy from .03 @ .03½ to .02¾ @ .03. In old domestic rags, black stockings have shown a slight change, former prices of 2.50 @ 2.75 are now 2.50 @ 3.00.

New Pulp Storage Rates Proposed

The New England Freight Association dockets are proposing a new scale of Boston wood pulp storage rates to make them on more or less of an equality with those at other Atlantic ports. For the first thirty days the rate would be 15 cents per 100, and for each succeeding ten days or fraction thereof, 5 cents. A new rate on "rag dust" from Fairfield, Me., to Berlin, N. H., is proposed by the association. The present rate is 25 cents and the proposed is 20 cents minimum car load 17,000 pounds. It is proposed to reduce to 18.50 cents per 100 pounds the present rate of 20 cents per 100 pounds on waste paper from New York Harbor lighterage points, and Brooklyn, to Holyoke, Mass.

To Market New Paper Products

Replies to inquiries of the Industrial Committee of the New England Council as to new products which New England business executives intended to put on the market in 1932 to maintain their comparatively strong position and increase their profits include from the paper and paper products trades the following:

Rising Paper Company, Housatonic, Mass.: New line of printing paper, also letterheads, featuring quality sheets at moderate prices.

Nashua Gummed and Coated Paper Company, Nashua, N. H.: New type of waxed paper for wrapping, popular with advertisers.

Package Paper Company, Holyoke, Mass: Cellophane doilies, imitating laces, and packaged conveniently for the retail trade.

National Folding Box Company, New Haven, Conn.: Paper ice cream cans, weighing one and one-half pounds, designed to replace the average 12-pound metal containers; moisture-retaining paper cigar box; similar cigarette box, used by one manufacturer of a popular brand instead of the usual tin for packages of fifty.

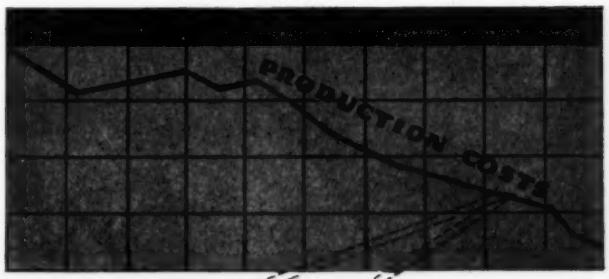
Carter's Ink Company, Cambridge, Mass.: "Midnight" carbon paper, identified on the reverse of each sheet by a night sky scene, first successful attempt to identify carbon paper by a decorative reverse side, also "Carter Jewel Case," an attractive case containing four bottles of ink, each in a jewel shade to harmonize with popular tinted stationery.

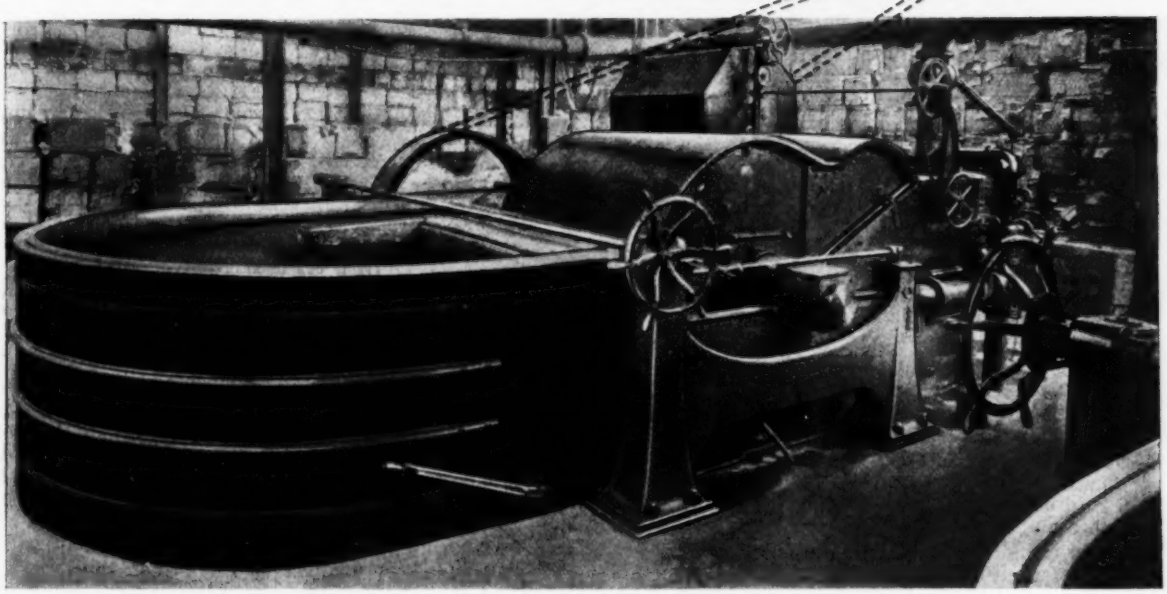
Andrews to Distribute Gilbert Papers

The Gilbert Paper Company, makers of air dried bond papers, Menasha, Wis., have sent approximately 2,000 circulars in the form of broadsides, to the New England trade, announcing that the Andrews Paper Company has been appointed New England distributor of Gilbert papers. They also state in the announcement that they make 15,000,000 pounds of high grade bonds and ledgers annually. This company claims to be the first to install Barbour air dry machines, used in the modern method of drying papers, the first to equip all machines with modern Centrifiers, and the first bond mill in America making a mixture of rag and wood. The Gilbert Paper Company is

(Continued on page 46)

Let the new JONES BEATER *Pull down your Production Costs!*





An installation of JONES High-Speed Beater and Cylinder Washer in the Union Bag and Paper Mill, Glens Falls, N. Y.

ARE your production costs in line with the new economic conditions of today? In your program of sweeping economies, have you given serious thought to the thousands of dollars you can save each year by greatly reducing manufacturing costs with JONES equipment.

Boiled down to definite figures we showed one mill the savings effected by installing JONES Beaters in place of their old equipment. Here are the facts:

Power consumption per year in present equipment	6,244,992 H. P. hours
Power consumption per year in proposed JONES equipment	2,695,680 H. P. hours
Saving in H. P. per year by use of JONES BEATERS	3,549,312

Assuming that a mill cannot produce an H. P. hour for less than 1¼ cents, the savings per year will be:

3,549,312 H. P. hours × 1¼c=$44,366.00

Comparing these savings with the cost of the new equipment *complete* shows that the latter pays for itself within one year. And there is an additional savings over the cost of JONES equipment of 12 percent on the investment.

With JONES equipment not only is greater production assured, with much less horsepower, but the beating time is shortened due to the outstanding superior features of JONES Beaters.

We shall be pleased to give you a report on the savings JONES equipment can effect in your mill, without obligation. Your inquiry is invited.

Jones

E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of High-Grade Machinery for Paper Mills

New York Trade Jottings

W. M. Osborn Paper Company, formerly of 19 Bridge street, has moved its offices and warehouse to 338 Berry street, Brooklyn, N. Y.

* * *

A. Hendon & Son have been chartered by the State of New York to manufacture paper boxes, with a capital stock of $20,000. W. Klein, of 11 Park Place, New York, is the attorney.

* * *

Farrell Card and Paper Company has been organized by C. J. Farrell, formerly of the Brainard Paper Company, with offices at 50 Beekman street, New York. The telephone number is Beekman 3-3079.

* * *

Francis Hays and William Nugent have joined the sales staff of W. L. Jones, Inc., paper and twine merchants, of 116 Prince street, New York, and will both cover the printers and publishers of New York City.

* * *

Process Engineers, Inc., of 501 Fifth Avenue, New York, announce that in future its offices and laboratory will be located in the Slote Building, Mount Vernon, N. Y. This change is being made in order to have extended facilities for research work.

* * *

Norma-Hoffmann Bearings Corporation, of Stamford, Conn., manufacturers of "Precision" Ball, Roller and Thrust Bearings, announces the removal of its New York sales office, on April 15, from the Grand Central Terminal to new and larger quarters in the Commerce Building, 155 East 44th street. From this new address a full staff of sales engineers, with increased facilities, will continue to serve the Eastern territory.

* * *

William E. Ebbets, who during his long association with the paper industry has gained many mill and merchant friends throughout the country, has opened an office in the Pulitzer World Building, 63 Park Row, New York, as paper mill representative selling to merchants and converters. Mr. Ebbets extends a cordial invitation to out-of-town members of the paper industry to make his office their headquarters while in New York.

* * *

Marquard H. Lund, United States Commercial Attaché at Oslo, Norway, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association, held at Allerton House, New York, on Monday. Mr. Lund has just returned from Oslo and during his interesting and instructive address gave the latest information regarding conditions in the Scandinavian countries, including Norway, to which he is specifically assigned. At the time he was sales manager for the Crystal Tissue Company, Mr. Lund was a member of the association and has a thorough knowledge of the paper industry, having been appointed Commercial Attaché mainly because of this fact. Mr. Lund answered innumerable questions and at the close of his talk was accorded a hearty vote of thanks from all present. There was an excellent attendance.

* * *

The National Association of Waste Material Dealers, Inc., has announced the selection of W. Fred Clark as manager of its traffic department. Mr. Clark has for some years been connected with one of the country's largest industrial concerns and enjoys a close and friendly acquaintanceship with many railroad officials throughout the country. His experience has covered transportation both from the standpoint of the railroads and shippers and his work before the Interstate Commerce Commission in behalf of the large corporation he has represented has given him an experience that will prove very useful in connection with his duties as manager of the association's traffic department. The National Association of Waste Material Dealers, Inc., through its traffic department is planning to bring together for a conference on traffic matters, all associations or groups in any way interested in the transportation of waste materials. It is hoped, as a result of such conference, to eliminate as far as possible any duplication of effort, as well as to avoid various groups working at cross purposes with each other. Organizations made up of consumers of waste materials will be invited to the proposed conference and invitations will gladly be extended to any association or group who may indicate to the association that they would like to participate in such a conference. Such requests should be addressed to the Traffic Department, National Association of Waste Material Dealers, Inc., 1109 Times Building, New York.

Swedish Pulp Mill Workers Strike

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 13, 1932—A strike was declared, effective April 11, by 17,000 wood pulp workers of Sweden following their refusal to accept the wage proposal of the Mediation Commission, according to a radiogram received in the Commerce Department Saturday from Trade Commissioner Basil Dahl, Stockholm. This strike will seriously affect the wood pulp industry of Sweden. The dispute between mill owners and workers centers around the proposal of the former to reduce hourly wages by 6 per cent and piece work rates 12 per cent.

Strikes that became effective in March closed a number of mills, and the one that is effective today will close virtually all the remaining wood pulp mills in Sweden and may result in serious curtailment of pulp and paper manufacturing if the strike continues, the cable indicated.

Tayloe Joins Champion Organization

MEMPHIS, Tenn., April 8, 1932—At a banquet tendered the Memphis printers by the Tayloe Paper Company, of this city, on the night of April 1, at the Peabody Hotel in Memphis, it was announced that the Tayloe Paper Company was joining the Champion Coated Paper Company, of Hamilton, Ohio, as distributor in this territory.

Alfred D. Tayloe, of the Tayloe Paper Company, acted as toastmaster. The Champion Coated Paper Company was represented by John R. Aust, Jr., manager of the Southern sales, having offices in St. Louis, Mo., and E. K. Hunt, general advertising manager, of Hamilton, Ohio.

Mr. Hunt made an address illustrated with moving pictures of the Champion organization, from wood operations to the finished product.

Fred Baker Passes On

Fred Baker, well known throughout the retail paper jobbing trade in New York City and the Eastern States, died suddenly at his home in Franklin Square, Long Island, on Wednesday, March 30.

Mr. Baker until recently was for many years the sole selling agent in this country for the Katrinefors Mill in Sweden and the paper mill division of the Waldhof Mill in Germany.

He is survived by his widow and two sons, George and Edward, also two daughters, Mrs. William Flohr and Mrs. Harold Blye.

TECHNICAL BOOKS

for

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by R. N. Miller and W. H. Swanson
M. W. Bray, R. Soderquist, T. M. Andrews,
W. H. Mansson

The papers which constitute this book appeared originally in the trade and technological journals as current reports of the progress of investigations under way at the United States Forest Products Laboratory for a period of about six years beginning with 1921. This information is the accumulation of years of experience. The method by which sulphite with the desired properties is to be made, the conditions under which it must be cooked, the strength of acid to be used, the equipment, operation and materials are all fully covered in this book. Included in this volume also is "Sulphite Pulp from Spruce" by Donald E. Cable.

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ORGANIZED ACCIDENT PREVENTION

On the sound and praiseworthy theory that every industrial concern is entitled to the benefits of organized accident prevention the National Safety Council has just announced a practical plan for spreading the gospel of Industrial Safety throughout the length and breadth of the land.

Every company, large or small, regardless of whether it holds membership in the Council, can have that organization's help in establishing a definite working plan for a continuous campaign of accident prevention.

The safety work of several thousand industrial members in all industries has recently been analyzed and their most effective technique will be made available to any plant desiring a specific course of safety procedure without cost. The sole obligation on the part of the employer will be to provide a few essential facts from which Council engineers can draw up a practical working plan commensurate with the needs of the company and applied to the specific operating problems.

Also as a result of this survey a new service is offered by the Council to old and prospective new members. It is known as the "Complete Industrial" Service and is exactly what its name implies—adequate, sufficient, all-inclusive. It represents a high standard in safety technique and reaches not only management, key safety men and foremen but also every employee.

Born of experience, it is authoritative which means it isn't so much a question of trying it as of using it. It reflects another decidedly progressive step in the work of the Council for it is a definite, tested method of reducing accidents.

A description of the new service may be pretty well summarized in one word, "personalized." In the past, warfare on accidents has been directed mainly by foremen and safety engineers. The new plan takes cognizance of the fact that it is really everybody's business. Every person connected with the plant becomes a sort of stockholder in the work. His interest is awakened and sustained through a twelve-month schedule of safety contacts.

For example, inter-department or inter-group safety contests have played an important part among companies conducting the most successful safety programs. Through this new service the Council provides its new Industrial Safety Trophy, an attractive heavy bronze plaque 7½ x 11½ inches, to be awarded the department or group winning the year-round safety contest within the company. The trophies are provided for display throughout the year and at the conclusion of the contest are inscribed and presented with proper ceremony to the winning group. In this way every employee has a definite, intimate part to play. A new trophy is provided annually.

Another paramount feature of the new plan is its reaching the individual workman. The popular little magazine *The Safe Worker*, is sent out monthly to every employee in the company. Payroll messages also are provided to be given on pay day to every worker as an added reminder for safety. In many other ways management reaches the man on the job who, after all, must be won over to accident prevention if the program is to be successful.

The National Safety Council will gladly furnish full information on the new complete membership, and also stands ready to help any reader of THE PAPER TRADE JOURNAL in laying out a practical working plan for handling its accident problems, without any membership obligation whatsoever. There is a crying need, the Council feels, to let the country-at-large know of the remarkable achievements being made in safety throughout industry.

The Council stands ready not only to help broadcast these remarkable achievements in human conservation but also is anxious to help any and all industrial concerns to get their safety work started off on the right foot.

"Industry should strive for the *maximum* in safety, rather than the *minimum*," says W. H. Cameron, Managing Director of the Council. "We have learned there is no halfway business about safety. No one ever gets full-time results from part-time efforts. Half-hearted, spasmodic safety work will never solve the accident problem. Many of the largest plants of the country are making real records in safety because they demand the maximum rather than the minimum."

That is exactly why the Council has provided the new Complete Industrial membership plan. It points the way to definite accident reduction through an intensive, thorough and continuous campaign of safety work.

GERMAN CHEMICAL PULP INDUSTRY

Adverse conditions resulting from increased competition from Swedish producers in both the foreign and domestic markets and the widespread depression in the industry have caused German chemical pulp producers to further restrict production from 10 to 20 per cent in addition to

the 30 per cent cut established by the international agreement for restricting production entered into with producers in Scandinavian countries according to Consul Sydney B. Redecker in a report made public by the Department of Commerce.

German chemical pulp plants have been working at considerably below the percentage of capacity established under the international agreement and it is reported that some plants are operating at only 45 per cent of this capacity which is equivalent to a voluntary curtailment of about 25 per cent beyond that required by the agreement.

Domestic production of chemical pulp in Germany dropped to 966,414 metric tons in 1931 compared with 1,175,064 metric tons in the preceding year, according to figures compiled by the Association of Paper, Board, and Wood Pulp Industries. Approximately 60 per cent of the 1931 output consisted of unbleached sulphite pulp, the manufacture of which declined by 17 per cent. An even greater decline took place in the manufacture of bleached sulphite, which represents about 30 per cent of the total chemical pulp production. An encouraging feature in the situation however is the fact that while stocks on hand December 31, 1931, were some 17 per cent above those on hand December 31, 1929, they were 33 per cent below the level of those held on the corresponding date in 1930.

Imports of chemical pulp into Germany during 1931 increased over those of the previous year by 7 per cent amounting to 153,530 metric tons compared with 143,826 metric tons during 1930. Of this amount Sweden was the principle source of supply sending 49,293 tons to Germany during the last calendar year.

With a view to remedying the unfavorable situation the report states that negotiations have been carried on at various times in recent months for harmonizing relations between the German and Swedish industries. The German Government first countered appeals from German Chemical producers for assistance by the suggestion that they undertake private negotiations directly with the Swedish producers in an endeavor to establish a friendly understanding. Negotiations between the two industries failing to achieve positive results, the German Government later took the initiative in striving to obtain some favorable action through representations to the Swedish Government. It is stated that these efforts have also been barren of results up to the present. It is possible that eventually some sort of agreement may be established between the German and Swedish industries, or that changing conditions may lessen the advantages now enjoyed by Swedish producers.

W. J. McChesney To Manage Sales

[FROM OUR REGULAR CORRESPONDENT]

COHOES, N. Y., April 11, 1932.—The Mohawk Paper Mills, Inc., announce the appointment of W. J. McChesney as general sales manager. Mr. McChesney was formerly advertising and export manager of the A. P. W. Paper Co., Albany, and more recently had his own export business in New York City.

New TAPPI Members

The following elections to membership are announced by the Technical Association of the Pulp and Paper Industry.

E. C. Gildenzopf, until recently general superintendent of the Congoleum-Nairn, Inc., was formerly superintendent of the Arrowhead Paper Mills, sulphite superintendent of the York Haven Paper Company and Detroit Sulphite Pulp and Paper Company, finishing room foreman of the Rhinelander Paper Company, and a sulphite cook at the Marathon Paper Mills.

G. A. Hermann, sales engineer of the Herman Manufacturing Company, Lancaster, Ohio, was formerly president of W. H. Hermann Company, Lancaster, Ohio.

F. J. Hoar, engineer of the Stebbins Engineering and Manufacturing Company, Watertown, N. Y., is a 1923 graduate mechanical engineer of Clarkson College of Technology.

Frederick Holt Jr., chemical engineer for the Gummed Products Company, Troy, Ohio, is a 1930 graduate of the Massachusetts Institute of Technology and was for two years with the Kimberly-Clark Corporation, Neenah, Wisconsin.

G. E. Landt, chief chemist of the Continental-Diamond Fibre Company, Bridgeport, Pa., received his Ph.D. degree from Columbia University. Doctor Landt was formerly a research chemist for the Grasselli Chemical Company, works chemist of the Agozote Millboard Company, and chief chemist of the Diamond State Fibre Company. He is also vice chairman of the Delaware Valley Section of the Technical Association.

F. J. Weleber, assistant chemist of the Hawley Pulp and Paper Company, Oregon City, Ore.

Louis Schweitzer, Secretary of Peter J. Schweitzer Inc., Elizabeth, N. J., makers of cigaret and condenser papers is a 1919 graduate of the University of Maine, and the University of Grenoble in France.

Southeastern Division To Meet

B. K. Steadman, secretary-treasurer of the Southeastern Division of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., has sent the following announcement to members:—

"Due to business conditions, we have decided that we will not have a two-day session this year but are planning to have a one-day meeting in Richmond on Saturday, April 30.

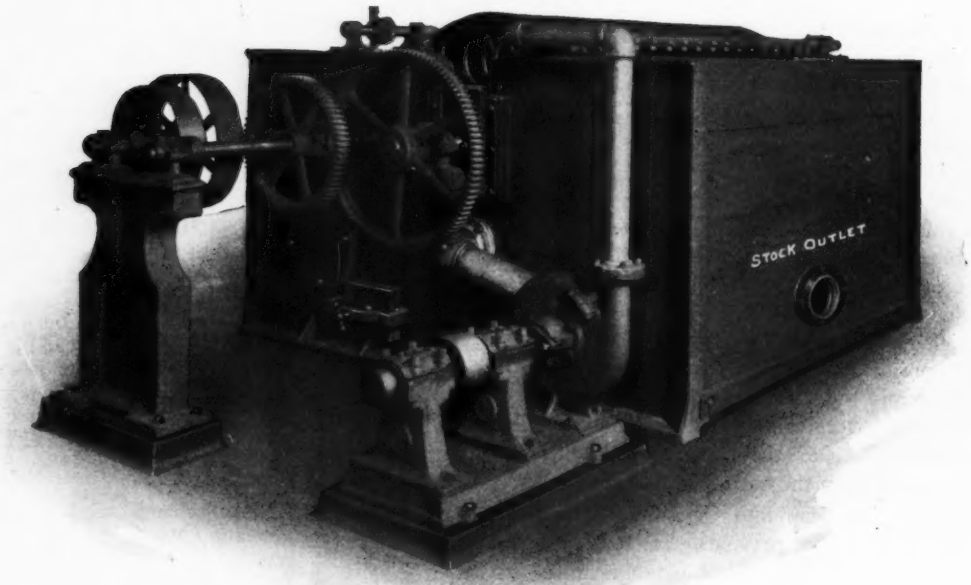
"This meeting will be mostly in the nature of a get-together meeting. No formal papers will be given as we feel that a small group like ourselves will benefit more by having informal round-table discussion of paper making problems.

"Bill Brydges, superintendent of Bedford Pulp and Paper Company, has consented to act as leader in these discussions, and we are very fortunate in being able to secure a man of his ability and experience for this work. Joseph H. Wallace is going to address us on the subject—'How to be happy, though a paper maker.' Mr. Wallace is an old timer in the paper game and is an interesting and humorous speaker and entertainer.

"The meeting will be held at Hotel Rueger, 9th and Franklin streets, Richmond, Va. This is a small but modern hotel in every way and is noted for its cuisine. Nice single rooms with bath can be had for $3.00 per day, rooms with adjoining bath for $2.75 and rooms without bath for $2.00. The hotel also has up-to-date garage accommodations. Please make your reservations direct with the hotel.

"We hope to have the pleasure of seeing you in Richmond on April 30. Be sure to come—we need you."

A Revolutionary Announcement to the Paper Industry



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Pulp and Paper Testing

Pulp Evaluation. H. Ainsworth Harrison. World's Paper Trade Rev. 96:2141-2146 (Dec. 25, 1931).—A reply to criticisms of the British Standard Method by Cottrall, Prior and Baker, emphasizing the necessity for great accuracy in a standard method and the importance of making no changes in it without the most careful consideration of all the factors involved.—A. P.-C.

New Method for the Determination of the Degree of Cooking of Sulphite Pulp. Carl Kulgren. Zellstoff Papier 11, No. 9: 525-528 (Sept., 1931).—The method consists in the determination of the quantity of acid obtained by the exchange of cations, which is gotten from treating the sulphite with acid and completely washing it out with solution of salt, for example, 1N NaCl. The quantity of lignin sulphonic acid or the quantity of sulphur is thus found which within certain limits is an expression for the content of lignin. The relation between the sulphur content and the methoxyl content in sulphite pulp remains constant, within experimental errors.—J.F.O.

Practical Slowness Tester. Arthur B. Green. Paper Trade J. 93, No. 24:34-36 (Dec. 10, 1931).—The principle, construction and operation of the new Green slowness tester are described. Comparative tests showed that the instrument equals in accuracy and surpasses in sensitiveness the laboratory types of slowness testers, with the single exception of the Heritage flow-rate test.—A.P.-C.

Beating and Freeness Tester Improvements. Anon. Paper Trade J. 93, No. 27:41-45 (Dec. 31, 1931).—A description of the construction and operation of the latest model of Schopper-Riegler beating and freeness tester, with a discussion of its merits.—A.P.-C.

Determination of Chemical and Mechanical Pulp in Paper. Criticism of Analytical Methods. Attempts to Classify a Newsprint Paper by The Average Rupture Test. Maximo Rothkopf. Anales Asocn. Quim. Argentina 18:247-256 (1930); C. A. 26:593. —Analysis of paper by the Halse method $M\text{-}P\ \% = 100\ (L-C)/(T-C)$, where $M\text{-}P$ is per cent of merchanical pulp, L is lignin per gram of dry pulp, T is lignin per gram of mechanical pulp and C is lignin per gram chemical pulp, is only accurate when T and C are known accurately. Resistance to rupture by the Schopper test at 65 deg. hygrometer test is directly proportional to the chemical pulp and inversely proportional to the merchanical pulp content.—C.J.W.

Technical Bleachability Determinations. N. W. Coster and E. Richter. Wochbl. Papierfabr. 62, No. 42:989-991 (Oct. 10, 1931).—The author differentiates between methods which are more exact but are not applicable to mill control and such methods which can be used for mill control. A permanganate number method is then described in detail along with curves and other data.—J.F.O.

Strength Testing of Pulps. Report by the Swedish Standardization Committee on the Investigation Carried Out. Wochbl. Papierfabr. 62, No. 35:830-834 (Aug. 29, 1931).—German translation of the original appearing in "Svensk Pappers-Tidning" No. 4, 1931. Detailed description of the various procedure carried out in testing the strength of pulps from the sampling to the humidifying of the test sheets.—J.F.O.

Concerning the Strength Testing of Pulps. W. Wirth. Papier-Fabr. 29, No. 31:524-526 (Aug. 2, 1931).—The author disagrees with the investigation of Humm and from his own investigations over the relations between the degree of beating and the bursting strength, comes to the conclusion that the investigation of a pulp according to Humm does not give indications of the strength of the paper made therefrom.—J.F.O.

Concerning the Relation between the Chlorine Consumption and the Copper Number. Erwin Fabrizi, Villach. Papier-Fabr. 29, No. 24:361-367 (June 14, 1931).—By a series of experiments, the change in copper number during the bleaching was studied, in order to work out a method whereby a bleach test can be made so as the bleaching can be better controlled to attain the desired fiber properties.—J.F.O.

Determination of the Bleachability, that is, the Degree of Decomposition of Sulphite Pulp. Von Possanner & R. A. Krauss. Papier-Fabr. 29:317-321, 335-339, 348-357 (May 24, 31, June 7, 1931).—Comprehensive resume of the known methods for

the determination of the degree of decomposition of pulps. The methods of Sieber, Roe, Bergman, Enso, Tingle, Roschier, Bjorkman, Joachim, and Johnsen-Parsons are investigated and compared. Between 2 and 6 per cent lignin, the Sieber Number is proportional to the lignin content, but at higher lignin contents the consumption of chlorine is too small. There is a linear relation within wide limits between the Roe Number and the lignin content. The method of Bergman gives very dependable results but possesses no advantage over the other methods. The Enso Number is a linear function of the lignin content from 1.5 to 6.5 per cent lignin. The Tingle chlorine factor is also a linear function to the content of lignin. The permanganate discoloring or bleaching time is uncertain for very strong pulps and for pulps as completely cooked as possible. The Bjorkman Number as well as the Joachim Number lignin curve deviates from a straight line with lignin contents under 3 per cent. In the method of Johnsen-Parsons, the permanganate addition is too small with hard pulps. Under the permanganate methods that of Joachim is preferred because of its simplicity, short time necessary and its accuracy. There is not much comparison between the samples colored by malachite green and phloroglucinal according to Klemn or Korn. The method of determining the content of pure cellulose was discarded because reliable methods are not known. The lignin determination methods of Becker, and Willstatter are too involved for factory control. Numerous curves and other data accompany the article.—J.F.O.

Critical Evaluation of the Decisive Factors in the Strength of Pulp as Well as the Known Methods for the Determination of the Tear Pulp. W. Nippe, Papier-Fabr. 29, No. 27:418-430 (July 5, 1931).—The author recommends a test whereby the ability of the fibers to felt can be determined.—J.F.O.

New Paper Machine Laboratory of the Institute for Textile and Paper Technology in the Technical University at Dresden. E. Meister. Papier-Fabr. 29, No. 32:533-535 (Aug. 9, 1931).—Description of the building with its various apparatus, as well as a report of the work carried out since the opening.—J.F.O.

Report of the Meeting of the Technical Committee and the Fiber analysis Commission of "des Vereins der Zellstoff und Papier Chemiker und Ingenieure" on the 4th of December 1930, Berlin. Papier-Fabr. 29, No. 36:585-597; No. 37:598-603; No. 38:609-612; No. 39:625-629; No. 40:640-642; No. 41:649-651 (Sept. 6-11, 1931).—In the discussion of the determination of the copper number of viscose pulps, there were relatively wide differences in the results from the various laboratories, reasons for this were given as well as information on the different methods; tables were given and a standard method was discussed. The rosin-fat determination was discussed, including the results of tests on the same pulps from various laboratories. In this report ether soluble, petroleum ether soluble, ash and the sulphur in the ash were determined. From the results it was seen that the supposed large difference in ether extract content between the summer wood and winter wood was not evident. The rosin difficulties in the summer is therefore not attributed to larger rosin content. Dichlormethan is advocated as a solvent as it does in one hour what requires four with the ether solvent. The determination of the whiteness of paper and pulp was discussed in much detail, both the principles and the various optical instruments were described, the objective method is recommended by the author. The physical and physiological variations in whiteness did not always agree with the instruments used. Turbidity values were explained and discussed in relation to the Darmstadt Beating apparatus. The turbidity values were obtained by comparing 20 c.c. of the water portion from the Schopper-Riegler in a thickness of 10 m.m. with distilled water in a half shadow photometer according to Ostwald. Turbidity curves were given to show the possible reproduction of results with this beating apparatus. At the beginning of the beating action the increase in beating degree is more dependent on the crushing action than the cutting action.—J. F. O.

Opacity: A Subject for Co-operative Work. A. E. Dawe. World's Paper Trade Rev., 96:1804-1810 (Nov. 27, 1931).—A discussion of the opacity, transparency and translucency of paper from the standpoint of printing qualities or impressibility. —A.P.-C.

Porosity of Paper to Air. Lhomme et Argy and P. Bard. Paterie 53:1583-1445. (Dec. 10, 1931).—The L'homme et Argy porosity tester is designed to measure the time required for the passage of 100 cc. of air through a sheet having an area of 50 sq. cm. under a constant pressure difference corresponding to 10, 20 or 50 mm. (in exceptional cases 100 mm. of water). Tests carried out with several instruments on three different grades of paper showed that: (1) the instrument is free from any inherent error due to lack of sensitiveness and gives constant results with the same paper under constant difference of pressure and constant hygroscopic conditions; (2) with grades of paper where the proportionality between the time required and the difference in pressure has been proved, i.e., for most papers to which the porosity test is generally applied (except for thin condenser papers), the most convenient pressure-difference (between limits of 10 to 100 mm. of water) can be used; (3) the same sample of paper gives comparable results when tested under different pressure-differences.—A.P.-C.

Notes on the Determination of the Tensile Strength of Paper. Raymond Fournier. Pulp Paper Mag. Can. 30:1193-1194 (Oct. 29, 1931).—See Paper Trade J. 93, No. 24, 44 (Dec. 10, 1931).—A.P.-C.

Calibration of the Elmendorf Tearing Tester. James d'A. Clark. Paper Trade J. 94, No. 1:33-34 (Jan. 7, 1932).—A simple and accurate method is described for calibrating dynamic tearing testers with examples for the Thwing and Marx-Elmendorf testers.—A.P.-C.

Inexpensive Electric Psychrometer. D. S. Davis. Paper Ind. 13:1115-1116 (Dec. 1931).—A brief description of the design of a portable electric psychrometer operated by a single dry cell. —A.P.-C.

Paper Stiffness Tester. W. H. Stuart. Paper Trade J. 93, No. 21:39 (Nov. 19, 1931).—A plea for the adoption by TAPPI of some simple instruments as standard for testing the stiffness of paper, together with a brief outline of the construction and operation of such an instrument at present in use by the Remington Rand Co.—A.P.-C.

Paper Specialties

Some Rationalization Measures Connected with the Utilization of Sulphate Pulp. M. Renzin. Bum. Prom. 10, No. 8:16-21 (1931); C. A. 10:594.—The author discusses the utilization of paper obtained from sulphate pulp in the production of parchment and cotton fiber paper and in substituting it for sulphite pulp in the making of newsprint paper.—C. J. W.

Permanence Studies of Current Commercial Book Papers. John O. Burton. Bur. Standards J. Research 7:429-439 (1931). —A wide variety of book papers were tested for composition, purity (freedom from acids or alkalies, etc.), strength and resistance to artificial aging treatment. In general these papers are not so highly purified as those used in the manufacture of writing papers, nor are they so resistant to the heat test used as an artificial aging treatment. The acid content of the papers tested was high. A correlation is shown between acidity and the change in strength and purity caused by accelerated aging.—A.P.-C.

One-Sided Finished Paper. Walter Sembritzki. Wochbl. Papierfabr. 62, No. 28:670 (July 11, 1931.—Pointers and advice concerning the manufacture of one-sided finished paper with a good finish and strength.—J. F. O.

Process for the Manufacture of Pliable Transparent Foil. Viktor Bausch, Berlin. Ger. pat. 521,765 (July 23, 1927).—J. F. O.

Device for the One-Sided Application of a Liquid, by Means of a Roll, Onto a Sheet Running Continuously. Firma Otto Philipp, Berlin. Ger. pat. 519,404 (Aug. 8, 1930).—J. F. O.

Histoxyl, a New Building Material of Wood. N. Schepelmann. Wochbl. Papierfabr. 62, No. 34:812-813 (Aug. 22, 1931).—Histoxyl is an artificial board which is used as a substitute for wood and as an insulation material. Knotty wood, wood refuse, and the top of trees of spruce and pine, and various inland deciduous trees are used as raw material. The material is cut up and ground in a pressure grinder and the fibrous material is taken up by a cylinder machine. It is then impregnated with size, dried and pressed.—J. F. O.

What is Tub or Vat Paper? Hans Weirich. Wochbl. Papierfabr. 62, No. 36:856,857 (Sept. 5, 1931).—The author distinguishes between 1. paper made by hand as hand made, 2. made on the cylinder machine as genuine vat paper and 3. paper made on the fourdrinier as imitation vat paper or substitute vat. The method of operation of the cylinder machine is similar in principle to hand making. By accurate testing vat paper made on the fourdrinier can be recognized.—J. F. O.

What is Tub or Vat Paper? An answer to definition given in No. 36 of this Periodical. R. Zumsteg and Sembritzki. Wochbl. Papierfabr. 62, No. 37:884 (Sept. 12, 1931).—The author is against the term genuine vat paper being applied to paper made on a cylinder machine. He recommends the two classes as 1. hand made and 2. machine made which includes both cylinder and fourdrinier. Sembritzki is likewise against the term genuine vat paper for paper made on a cylinder machine.—J. F. O.

Japanese Rice Paper. Wochbl. Papierfabr. 62, No. 32:766-67 (Aug. 8, 1931).—A description of the manufacture of so-called rice paper is given. The raw material is a shrub-like plant, fatsia papyrifera, which first grew wild and is now cultivated. The plant is cut in lengths of 60 centimeters and allowed to dry in the open. These pieces are then cut by a sharp knife into thin discs and pressed. These discs are then made into artificial flowers and like objects.—J. F. O.

Subsequent Color Changes in Paper. Tedesco. Wochbl. Papier-Fabr. 62, No. 48:1117 (Nov. 28, 1931).—The reason for the subsequent color change in tissues and crepe paper colored to the emersion process, is shown to be due to the sulphur dioxide content in the air of the warehouse. To prevent this dyes must be used that will be more resistant to sulphurous acid, and also by a mordanting process.—J. F. O.

Paper for High Tension Cables. Zellstoff Papier, 11, No. 11; 630 (Sept., 1931).—From practical experience in the A. E. G. Cable Mill at Oberspree, the author gives the properties which this paper should possess in relation to its strength as to its durability, the resistance to high temperatures without injury, etc.—J. F. O.

Packing Material for Soft Soap. Gerhard Stoltze. Wochbl. Papierfabr. 62, No. 36:860 (Sept. 5, 1931). Cartons impregnated with paraffine are used although they have the disadvantage that the soap must be packed at a temperature lower than the melting point of paraffine, namely, 38-40 deg. C. Asphalt and tar emulsions are also unsuitable. The author has discovered a special nitro-cellulose lacquer which is air tight and resistant to acids and alkalies.—J. F. O.

Blotting Paper from Rubber. Togo.- Wochbl. Papierfabr. 62, No. 36:861 (Sept. 5, 1931).—Rubber which can now be made very porous can be used as blotting paper. This rubber which is micro-porous is really a very valuable medium for filtration purposes.—J. F. O.

Tube Insulation Board. Fritz Hoyer. Wochbl. Papierfabr. 62, No. 36:855-856 (Sept. 5, 1931).—The fibrous materials used in the production of tube insulation board are rags, fibrous refuse from the textile industry and old paper. The microscopic analysis of an approved tube insulation board showed 30 per cent sulphite pulp, 30 per cent jute, 20 per cent cotton, 10 per cent wool and 10 per cent ground wood. The sulphite pulp and the ground wood comes from the old paper. The board shall have not more than 12 per cent ash and 12 per cent moisture and shall absorb at least 120 per cent of its weight of anthracene oil. It must be of a uniform weight and free from shives. Artificial rosin is used for the impregnation. The stock must be long and hard—J. F. O.

Paper for Electrical Purposes. A. V. Nagy and Walter Reuss. Zellstoff Papier 11, No. 10:576-80 (Oct., 1931).—The author describes the various kinds of paper used in the electrical industries, such as, cable paper, lacquered insulation paper, hard paper, condensor, glazed board, mica paper, etc. The various properties of the papers are given alone with the description of the tests made. Facts concerning the fiber furnish for the paper and its treatment are given.—J. F. O.

Rubber-Like or Resinous Condensation Products for Coating Paper. Herman A. Bruson assignor to Rohm and Haas Co. U. S. pat. 1,815,886 (July 21, 1931)—Numerous details and examples are given relating to the condensation of a "polybasic" acid, such as phthalic anhydride or acid, with acids such as dihydroxystearic, trihydroxystearic, tetrahydroxystearic, hexahydroxystearic or dihydroxybehenic acids, with or without addition of fatty oils such as castor oil, linseed oil, tung oil, rape-seed oil or fish oils. Instead of phthalic acid there may be used other "polybasic" ordanic acids such as succinic, maleic, glutaric, adipic, pimelic, suberic, azelaic, sebacic, citric, tartaric, malic, benzophenone-2, 4'-dicarboxylic, diglycolic, diphenic or naphthalic acids. The products are of a tough, soft, waterproof and elastic character and are more like waxes than resins as generally heretofore made from "polybasic" acids and polyhydric alcohols. They are suitable for coating paper and other materials.—A. P.-C.

Stencil Sheet. Armand de Waele assignor to D. Gestetner, Ltd. U. S. pat. 1,819,078 (Aug. 18, 1931).—Yoshino paper is provided with a coating substantially free from water, adapted to be stencilled by pressure, including a dispersion of a zinc salt of ricinoleic acid in coagulated gelatin and an oleaginous tempering agent.—A. P.-C.

Heating-Insulating Material for use in Building Construction. Henry F. Winkelmann. U. S. pat. 1,822,636 (Sept. 8, 1931).—The material is formed of layers of asphalt paper with an intervening layer of an adhering mixture of asphalt, vegetable fiber, paraffin oil and flaked phlogophite.—A. P.-C.

Sheet Material Suitable for use as Roofing, Siding, Etc. Thomas Robinson assignor to Lancaster Asphalt, Inc. U. S. pats. 1,819,199 and 1,819,200, Aug. 18, 1931.—*No. 1,819,199*—Plastic material capable of hardening, such as asphalt, and crushed slate or other filler, is placed between a pair of facing sheets such as paper, and the sheets are pressed together to consolidate and mold the plastic material to the desired shape, the facing sheets being arranged to cover both faces of the shaped plastic material and at least a pair of opposite edges. *No. 1,819,200* provides an apparatus for making products such as provided for in the preceding patent.—A. P.-C.

Composition Fiber and Cement Shingles and Boards. Harry E. Holcomb assignor to Fiberfraks, Inc. U. S. pat. 1,819,840 (Aug. 18, 1931).—A number of layers of hydraulic cement and fiber are passed in a substantially horizontal plane into contact with one another and subjected to pressure.—A. P.-C.

Composition Shingles. Thomas Robinson assignor to Lancaster Asphalt, Inc. U. S. pat. 1,820,834 (Aug. 25, 1931).—Tapered shingles are formed with a core of asphaltic and fibrous material of substantial rigidity and a covering layer of paper or felt impregnated with material such as asphalt.—A. P.-C.

Felted Sheets from Fibrous Material Such as Bagasse. Treadway B. Munroe and Elbert C. Lathrop. U. S. pat. 1,819,194 (Aug. 18, 1931).—A felted sheet of coarse-fibered insulating board formed initially of greater thickness than desired is split in a plane parallel to the felting surface so as to obtain a prod-

uct which may be used in the manufacture of floor coverings, roofing, etc.

Wallboard. Hugh M. Spencer assignor to The Upson Co. U. S. Pat. 1,821,120 (Sept. 1, 1931).—A mixture of relatively finely divided inorganic matter such as limestone and sulphite liquor pitch is placed between two layers of sheet material such as paper, and the materials are heated together to cause the mixture to intumesce into a porous mass of cellular character.—A. P.-C.

Shoe-Stiffener Material. Frank O. Woodruff assignor to Beckwith Manufacturing Co. U. S. pat. 1,819,011 (Aug. 18, 1931).—A porous water-laid sheet is formed of felted fibers to which there is attached as a discontinuous phase a previously gelatinized cellulose derivative such as celluloid capable of again being gelatinized by a volatile solvent and of rendering the material stiff on evaporation of the solvent.—A. P.-C.

Action of Cuprammonium on Cellulose and its Applications in Paper Making. D.C.M.G.I.P. Papeterie 53: 1314-1318 (Nov. 10, 1931).—A brief outline of the action of cuprammonium on cellulose and of its applications and merits for waterproofing paper and paper products.—A. P.-C.

Paper Towels. John C. Sherman assignor to Brown Co. U. S. pat. 1,819,041 (Aug. 19, 1931).—Lines of water-resisting material are placed on certain portions of opposite sides of paper towels to delay disintegration somewhat by absorption of water (but the material is left so that it will disintegrate from a single use). The water-resisting coating may comprise glue treated with formaldehyde, or a dichromate, or a "K.B." emulsion containing asphalt, etc.—A. P.-C.

Paper-Like Product. Kirke L. Moses. U. S. pat. 1,819,435 (Aug. 18, 1931).—An absorbent web of loosely matted fibers is formed by a paper making process, and the wet strength of the web is increased to a point where it will hold together when manipulated in a wet state by incorporating in the material of which the web is constituted a water-resisting web-strengthening ingredient, such as viscose, which acts to lightly bind the fibers together when the web is wet but does not appreciably affect the porosity of the web, then impregnating the web with rubber-containing latex and evaporating the water.—A. P.-C.

Paper. Albert L. Clapp. U. S. pat. 1,820,962 (Sept. 1, 1931).—A water-insoluble gel, such as may be formed from casein or cellulose xanthate, is incorporated with paper pulp, and the mixture is sheeted and subjected to high pressure with the gel in a highly hydrated condition, to obtain a product which is similar to that made of gelatinized pulp.—A. P.-C.

Reinforced Paper and Process and Machine to be Employed in the Manufacture Thereof. John W. Marshall assignor to Helen H. Marshall. U. S. pat. 1,821,067 (Sept. 1, 1931).—Paper is treated with a penetrative liquid such as a dry distillation product from calcium acetate which is a solvent for reinforcing material to be added, such as a pyroxylin composition, and the latter is then applied in liquid form and allowed to solidify in and on the paper—A. P.-C.

Use of Paper as Refrigerator Insulation. J. L. Knight. General Electric Co. Pulp Paper Mag. Can. 31:1403-1404 (Dec. 24, 1931).—The most efficient method found for insulating refrigerator cabinets with paper is to use parallel sheets of unbleached sulphate paper, spaced 0.1 in. apart and joined by corrugated sheets having about three corrugations per in., to a total thickness of 3 in. The insulating sheets thus prepared are protected from moisture by encasing in a stout cardboard carton, made exactly to size, and dipping the whole in a bath of melted petrolatum wax.—A. P.-C.

Hygienic Food Wrapping. James Strachan. World's Paper Trade Rev. 96:1892-1896 (Dec. 4, 1931).—A brief discussion of the qualities required of papers used for wrapping food products.—A. P.-C.

Creasing Cardboard. Vickers-Armstrong, Ltd., R. W. Rose and V. H. Seymer. Brit. pat. 348,900 (May 27, 1930).—A machine for creasing a constantly travelling web of cardboard comprises tools mounted on upper and lower beams, each of which moves parallel to itself in a circular path of predetermined diameter at the same linear speed as the web.—A.P.-C.

Embossing Wrapping Paper. Waxed Papers, Ltd., and W. T. Clout. Brit. pat. 349,104 (Jan. 10, 1930).—To minimize the effect of creasing and folding when waxed paper is used for wrapping bread, the surface of the paper is broken up by indentation so as to reduce the transparency and gloss without deformation of the paper itself—A.P.-C.

Greaseproof Paper. J. Melrose Arnot. World's Paper Trade Rev. 96:2148-2156 (Dec. 25, 1931).—A description of its characteristics and methods of manufacture.—A.P.-C.

Behavior of High-Tension Paperboard Under Oil at Elevated Temperatures with Regard to Its Dielectric Properties. Herbert Kogert. Kunststoffe 21:25-27, 59-60 (1931).—*See* Chemical Abstracts 26:302 for abstract.—C. J. W.

Changes of Cellular Tissue in the Process of Parchmentization of Unsized Paper with Sulphuric Acid. L. Abkin. Bum. Prom. 10, No. 4:21-28 (1931); C. A. 26:597.—The investigation indicates that in the process of parchmentization of unsized paper with sulphuric acid the cellulose undergoes not only physical but chemical changes. Thus the parchment paper is not a homogeneous product. It is composed of unchanged, or slightly changed cellulose containing modified cellular tissue in the form of a gelatinous mass and products of decomposition partially soluble in water and completely soluble in alkali and capable of reducing Fehling's solution.—C. J. W.

New Cheaper Composition of Cigarette Paper. N. Boshnyak and I. Schneiderman. Bum. Prom. 10, No. 7:35-36 (1931); C. A. 26:597.—A reduction in the cost of production of cigarette paper is obtained for one grade by partial substitution of paper pulp and cotton rags for linen rags and for another grade by a complete substitution of cotton rags for linen rags and an increased addition of paper waste.—C. J. W.

Machinery

Device for the Counting of Logs. K. S. Stigenberg & H. E. Stigenberg, Skutskar. Swed. pat. 71282 (Sept. 30, 1929).—Each single log introduced influences a contact at a suitably chosen point on the drive, which closes an electric current, and thus gives an impulse to the counting device by means of a magnetic device. The device is also connected so that when the device for moving the logs is down the current is off on the counter and again closed when the logs move again.—J. F. O.

Barking Machine. H. A. E. Nilsson, Ockelbo. Swed. pat. 71,389 (April 4, 1930).—The barking depends on the rubbing action. The machine is provided with a device for moving forward the logs in an oblique direction and so that a rolling motion is given to the logs.—J. F. O.

Process for the Barking and Degumming of Wood. Carl G. Schwalbe, Eberswalde. Ger. pat. 527,705 (Aug. 3, 1927).—The wood is pretreated warm with materials which soften the wood. It is heated in a solution of acids, acid salts or materials splitting off acids, to the boiling point of the liquid, and then the bark is removed in the ordinary manner by rubbing. For example, the wood is treated with a ½ to 1 per cent of hydrochloric acid and heated at a boiling temperature for ½ to 1 hour. The acid concentration and the length of boiling depends on the time the wood has been in storage. After the bark has been completely softened it is put in a barking drum or similar apparatus. The wood is then washed with water containing a little alkali and afterwards chipped.—J. F. O.

New Ways for the Conveyance of Stock of High Density. Georg H. Golbs. Oslo. Zellstoff Papier 11, No. 11:625-29 (Nov., 1931).—The author investigates which kind of stock pump is best for the various uses occurring in the manufacture of pulp and paper. Several makes are recommended along with their possible uses.—J. F. O.

Rights of Employers and Employees in Inventions Developed During the Period of Employment *

By Charles W. Rivise[1]

There are two very important questions that frequently arise between employer and employee in regard to inventions developed during the period of employment. The first question is: Who is the actual inventor? For, unless the actual inventor signs the oath of the application, there can be no valid patent. The second question is: What are the respective rights of the parties in the resulting patent? For, the employee may honestly feel that he should be handsomely rewarded for having made the invention possible and the employer may be just as sincere in believing that he is entitled to the ownership of the patent because of the employer-employee relationship.

Rules for Determining Who Is the Actual Inventor

The mere fact that one who conceives an invention avails himself of the constructive skill and ingenuity of another to reduce it to practice does not render the first person any less the sole and original inventor. The facts in the case of Parradee v. Crell 1925 C. D. 95 were as follows:—Parradee, the superintendent of a plant, conceived a new machine for forming and tempering leaf springs and assigned Crell, the foreman in charge of certain work, to build the machine. The machine was actually built by workmen under the direct supervision of Crell. Parradee and Crell each claimed to be the sole inventor, Parradee on the ground that he conceived the idea and fully disclosed it to Crell, and Crell on the ground that he had personally supervised the building of the machine. The court held that it was natural in a large plant that the foreman, rather than the superintendent, should personally supervise the work and gave the patent to Parradee, the superintendent, since Crell had only been carrying out his orders.

Another instructive case on the point is that of Larson v. Crowther 1924 C. D. 357; 1 Fed. Rep. (2nd) 357. Larson, a bacteriologist at the University of Minnesota, was working to secure the unmodified protoplasm of living bacteria for the purpose of producing a vaccine which would give immunity against certain diseases. Crowther was assigned by the university to help Larson construct suitable apparatus in which to break up the protoplasmic cells and, under Larson's direction, constructed a container with a suitable coupling which could be attached to a carbon dioxide tank. Living bacteria were suspended in water within the tank and subjected to the pressure of carbon dioxide gas. The work was successful and Crowther sought to patent the device and method as his own. The court held that he had been merely carrying out the inventive idea of Larson and was not entitled to be considered an inventor. Larson was accordingly granted Patents Nos. 1,517,844 and 1,517,845.

The rule that one who avails himself of the constructive skill and ingenuity of another to reduce his inventive concept to practise is no less a sole and original inventor applies even in cases where the second person makes valuable discoveries and suggestions ancillary to the plan and preconceived design of his employer.

The following were the facts of Gedge v. Cromwell 1902 C. D. 514. Gedge had been granted Patent No. 458,572 for a wire-reel and entered into an agreement with a company with which Cromwell was connected that it should make improvements and perfect the details of the reel on a plan furnished by Gedge. When the reel was perfected, Cromwell claimed that since he had personally made the improvements, he was entitled to a patent as the sole inventor. The court thought otherwise and awarded the patent to Gedge.

In the case of Moody v. Colby 1914 C. D. 15; 106, the facts were as follows:—Colby conceived the general plan of a furnace and arranged with Moody, as engineer in charge of the transformer department of the General Electric Company to have it built at the company's plant and under Moody's supervision. Colby furnished a blueprint of the crucible and later supplied the crucible, also disclosing to Moody some of his ideas. Moody instructed his assistants as to the construction of the primary winding and the arrangement of the brass cooling coil and, therefore, contended that he was entitled to a sole patent. The court held that he had followed Colby's general plan and the fact that he designed some of the details without departing from the ideas disclosed to him by Colby entitled Colby and not Moody to the patent as a sole inventor.

The following were the facts of Agawam Woolen Co. v. Jordan 7 Wallace 583:—Gould was an inventor of spinning machinery. Prior to his invention the process of spinning thread required five machines. Gould created a new combination of machines eliminating one of the machines called the "billy." Winslow, one of his employees, suggested that a spindle be substituted for the cans previously used for holding the fiber. To make the spindle practicable, Gould had to devise a mechanism for evenly distributing the fiber on the spindle. The patent was granted to Gould as a sole inventor and was sustained by the Supreme Court.

An analysis of all of the foregoing illustrations indicates the existence of one common underlying fact. The person finally held to be the sole and original inventor had in each instance empowered the other claimant, by way of employer-employee, partnership or other contract relationship (implied or expressed), to reduce his own inventive concept to practice or to perfect it in its details. That this underlying fact is absolutely essential to the case of the one alleging to have disclosed the invention to the other is brought out by the decision of Takamine v. Kohman 1924 C. D. 243; 296 Fed. Rep. 1021.

Kohman, a senior fellow of the Ward Baking Fellowship at the Mellon Institute, had conceived the idea that a material containing both diastatic and proteolytic enzymes could be advantageously used in the manufacture of leavened bread, purchased a bottle of taka-diastase (a substance developed by Dr. Takamine and well known in the market as containing both classes of enzymes) and successfully reduced the inventive concept to practice—producing a bread of superior qualities. The taka-diastase used in the experiments was too expensive for commercial use in bread making and Kohman made subsequent experiments to find a less expensive material containing both enzymes. At this juncture, Takamine requested the Mellon Institute to experiment with his cheaper products. Kohman obtained Patent No. 1,274,898 and Takamine contended that Kohman was not entitled thereto on the ground that it was Takamine who suggested the use of the cheaper materials containing both enzymes. It was decided that the employer-employee or other contract relationship did not exist between Takamine

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Contribution of the TAPPI patents committee.

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and Kohman and, hence, Kohman's work could not inure to Takamine's benefit. Furthermore, at the time Takamine suggested his less expensive materials, Kohman had already completed the inventive act and was merely seeking a cheap source of the two enzymes which he knew to be essential to his invention.

The courts have extended the employer-employee doctrine to cases in which the director of a laboratory had assigned a subordinate to the tasks of making the experiments, analyses and observations which resulted in the invention in question, provided, however, that the director planned the experiments in progress, directed the investigation and interpreted the results. Even if the director, when he planned the experiments, had no clear or definite idea of the final result and even if the worker was the first one to realize that an invention had been made, the director is, nevertheless, the sole inventor.

The following were the facts of National Electric Signalling Co. v. De Forrest Wireless Telegraph Co. 140 Fed. Rep. 449, involving Reissue Patent No. 12,115 to Fessenden for a receiver for electro-magnetic waves. Vreeland was working for Fessenden and was experimenting with a hot wire barretter under his employer's directions. Fessenden suggested using the fine terminal with the liquid and a change from the positive to the negative side. Vreeland tried out Fessenden's suggestion and, when they worked successfully, brought the fact to Fessenden's attention. This was but one step in Fessenden's researches but Vreeland, having been the first to observe the new phenomenon, thought that he was the inventor. The court held that Fessenden was the sole and original inventor.

Another illustration is the case of Minerals Separation, Ltd. v. Hyde 242 U. S. 261; 1917 C. D. 381, involving Patent No. 835,120 to Sulman, Kirkpatric-Picard and Ballot for a process of concentrating ores. The patentees had conceived the idea that a minute quantity of oil might be used to effect the separation of the metalliferous materials from the gangue and employed a man to try out the process, using different amounts of oil. He was instructed to start with a relatively large quantity of oil and keep on decreasing the amount in each successive batch to ascertain the most economical and effective amount. A report was made from time to time to the patentees and recorded. The most economical and effective results were obtained with a fraction of a per cent of oil. The patentees and not the worker who had faithfully followed directions were held to be entitled to the patent.

It must not be concluded that an employee cannot under any circumstances be either a joint inventor with his superior or a sole inventor. An employee is entitled to be considered a joint inventor, if he makes suggestions which modify and make the main idea operative or contributes an independent part of the entire invention which combines with the part produced by his employer to create the whole. A case in point is that of Kane v. Steinmetz and Standerwick 1923 C. D. 153; 285 Fed. Rep. 1013. Standerwick was working on a turbine-driven dynamo designed primarily to furnish current for locomotive headlights. The device proved unsatisfactory and his company authorized him to have a consultation with Steinmetz. As a result of the consultation, Standerwick was able to go ahead and design a satisfactory dynamo. Steinmetz was held entitled to be considered a joint inventor with Standerwick, for, without his suggestions and counsel Standerwick could not have produced a satisfactory dynamo.

The employee is a sole inventor if he is merely given a problem in very general terms or finds it necessary to discard or depart radically from the general plans laid down by his employer. The following are a few instances in which the employee was held to be the sole inventor:—

Forgie v. Oil Well Supply Co. 58 Fed. Rep. 871. Forgie conceived the idea that somehow the mechanism and operative power of a lifting jack could be utilized in operating a wrench for oil-well tools (A device for coupling and uncoupling the sections of a drill rod for a well boring or drilling apparatus). He had no clear idea as to the specific mechanism required and presented the problem to Barrett, the inventor of a jack that had had considerable commercial success. Barrett designed and constructed an operative device on a plan prescribed by himself and made a few for Forgie. Forgie thought himself to be the true inventor and secured Patent No. 422,879. The patent was held invalid as Forgie had done nothing more than suggest the problem to Barrett.

Pembroke v. Sulzer 265 Fed. Rep. 996. Sulzer was desirous of securing a carbon paper suitable for use in cameras to be used in connection with an attachment for marking the negative. He asked Pembroke for a suitable carbon paper, specifying that "It should be opaque and free from defects, like pinholes, and it should have the property of the carbon being easily removed when written upon with a pencil or stylus, as distinguished from the ordinary carbon paper, of which it was required that as many impressions as possible could be taken." No such carbon paper could be obtained on the market and Pembroke designed a suitable product. Sulzer claimed to be entitled to the patent as a sole inventor, but the court awarded the patent to Pembroke.

Collar Co. v. Van Dusen 23 Wallace 533. Evans had an idea that a paper having certain specified qualities would make an excellent collar and expressed his opinion to a paper manufacturer. However, he did not give the manufacturer any idea as to how such a paper could be made or its constituents or ingredients, nor was such a paper available on the market. The manufacturer after many experiments and without Evans' assistance finally succeeded in preparing a suitable paper. Evans applied for and secured the patent, but it was held invalid.

Streat v. White 35 Fed. Rep. 426. A "seersucker" is a printed cloth presenting a smooth stripe parallel to and alternating with a ridged or crinkled stripe. Streat sent a sample of the cloth to a designer and asked him to produce an imitation of the design, without, however, instructing him as to how the imitation was to be accomplished. Streat applied and secured Design Patent No. 16,375 on the product, but it was held invalid, as having been issued to the wrong inventor.

Meier & Swift v. Sullivan 1916 C. D. 178. Sullivan's employers expressed to him the view that a motor driven machine for issuing tickets would be a good thing and that the devising of such a machine should be undertaken. Sullivan set to work and solely by his efforts produced a satisfactory device. The court decided that the patent should properly be issued to Sullivan as a sole inventor, particularly as the broad idea of operating a machine by motor was not patentable.

Robinson v. McCormick 1907 C. D. 574. The invention was an indicator for duplicate sales slip files. In order to obviate the necessity of handling all the file holders in the cabinet every day, an indicator was devised so that it could be told at a glance which file holder had been removed from the cabinet during the day. McCormick had an idea of a complicated attachment to the casing of the cabinet. Lumbard discarded the complicated and expensive contraption and devised a simple "flap" or "flipper" for attachment to the file holder itself, which was automatically operated whenever the cover of the file holder was turned back or raised to deposit a slip. McCormick applied for the patent, which was refused on the ground that Lumbard had made the invention, having discarded the plan furnished by McCormick.

Ladoff v. Dempster 1911 C. D. 333. Dempster, a chemist at the General Electric plant, was engaged in improving upon the magnetite electrode devised by Steinmetz. He made several different combinations of material, one of which contained three to twelve per cent of titanium oxide. Ladoff, though an accomplished chemist, was hired as a laborer to assist Dempster and mixed, fired and tested the pencil according to Dempster's directions. He was not consulted in respect to the mixture but was expected merely to carry out orders. While doing so, he conceived the idea of reducing the iron oxide in the composition to metallic iron. Dempster claimed that since Ladoff was carrying out his orders,

the patent should rightfully be issued to Dempster as sole inventor. The court decided, however, that Ladoff in reaching the successful result had discarded Dempster's general plan and accordingly awarded Ladoff the patent (Patent No. 1,022,426).

Whenever a dispute arises between an employer and his employee as to who actually made a particular invention, the burden is placed upon the employee to prove by a preponderance of the evidence that he and not his employer made the invention. As stated in the case of DeForest v. Owens 49 Fed. Rep. (2nd) 826, "The temptation of the employee to gain knowledge while working under the skilled guidance of another and then to seek to capitalize such knowledge by betraying his trust and seeking a patent for himself is always great and too frequently occurs. The likelihood of such conduct on the part of an employee is always increased where the knowledge of the subject matter is confined to only a few people. To place no burden of proof upon the employee and the whole burden upon the employer under such circumstances as are at bar, would be inequitable and would have the tendency toward increasing the likelihood of bad faith on the part of the employee rather than to encourage loyalty and honest service."

To the same effect is the following language in the case of Larson v. Crowther 1924 C. D. 357; 1 Fed. Rep. (2nd) 761:—"The relation between mechanic and inventor is therefore one of high trust and confidence and the inventor must be reasonably safe-guarded against a betrayal of the faith reposed by him in his employee and against the misuse of information confidentially acquired. Because of that relation it is prima facie but strongly presumed that the employer and not his mechanic is entitled to patent the invention evolved. Consequently in any dispute between them as to which of them originated a patentable conception, the duty devolves upon the mechanic to establish by a clear preponderance of competent, credible and satisfactory evidence that the invention was his and not that of his employer."

The presumption in favor of the employer is much greater if the relationship between the parties is that of patent attorney and client. For, as stated in the case of Goodrum v. Clement 1922 C. D. 147; 277 Fed. Rep. 586:—"The relation of attorney and client is one of the highest trust and confidence demands the utmost good faith on the part of the attorney. This relation is not only highly confidential but presents so many opportunities for the reaping of special benefits at the expense of the client by an attorney so disposed that courts will closely scrutinize any transaction in which the attorney has assumed a position antagonistic to his client. And where, as here, the evidence shows that as a result of assuming such a position the attorney has gained an advantage, the burden is upon him to prove good faith, rather than on the client to prove the absence of it."

To the same effect is the following language from Reusch v. Fischer 1931 C. D. ——; 49 Fed. Rep. (2nd) 818. "The relation of attorney and client, admittedly, existed between Fischer and Reusch in patent matters obviously akin to that here in issue. This being true, the burden devolved upon Fischer to prove the utmost good faith upon his part and to establish clearly that he, and not Reusch, was the inventor of the subject matter of this interference. If, after considering all the facts, there remains any doubt as to the originality of the invention, such doubt should be revolved in favor of the client."

Rules for Determining Ownership of the Patent

In the absence of specific contract provisions, ownership or title in a patent is vested in the actual inventor and generally speaking no one else has any right therein. Hence, an employee, performing all the duties assigned to him in his department of service, may exercise his inventive faculties in any direction he chooses, with the assurance that whatever invention he may thus conceive and perfect is his individual property. This general rule is, however subject to certain limitations. If one is assigned to the task of devising or perfecting an instrument or a means for accomplishing a prescribed result, he cannot after successfully accomplishing the work for which he was employed, plead title thereto as against his employer. That which he was employed and paid to accomplished becomes, when accomplished, the property of his employer. Then again, when one is in the employ of another in a certain line of work, and devises an improved method or device for doing that work, and uses the property of his employer and the services of other employees to develop and put his invention into practicable form and allows his employer to use the invention in his business without objection or demand for extra compensation, the employer usually acquires what is known as a shop-right. A shop-right is an implied license giving the employer the right to use the invention in his own business without the payment of royalty for the life of the patent. It follows from what has been said that an employer has no right at all in an invention made by an employee before or after the period of employment or in the employee's spare time. And this is so, whether or not the invention relates to the employer's business.

The principles that have been laid down seem simple enough but the courts have found unusual difficulty in applying them to specific cases. This is obviously because the allegations sought to be proved by the litigants are generally in such hopeless conflict that it is often well-nigh impossible to ascertain from the testimony just what did take place between the parties. In this connection it may be stated that the courts are uniform in placing upon the employer the burden of proving by a preponderance of the evidence that the relationship and transactions between the parties were such as to give the employer a right to the employee's invention. This is so, because ownership or title in a patent is always presumed to be vested in the actual inventor.

The following decisions are illustrative of the principles that have been given, the facts being those that were sifted by the courts from the mass of contradictory testimony:—

Johnson Furnace & Engineering Co. v. Western Furnace Co. 178 Fed. Rep. 819. Parkinson was the director and business manager of the Johnson Company. His employment was general as relates to those positions and there was no agreement that he should turn over to his employers any inventions that he might develop during the period of his employment. Parkinson devised a new type of grate, resigned his position and secured Patents No. 828,769 and No. 834,932. It was held that the Johnson Company had no right in either of the two patents since Parkinson's employment was of a general nature and he had no duty to invent. Furthermore, the Company had not paid for the applications.

United States v. Burns 12 Wallace 246. Sibley, an army officer invented and patented a tent while in the United States Army, assigning a half interest to Burns. The Government agreed to pay Sibley $5.00 for each tent used in the army but when Sibley joined the Confederate Army the Government stopped paying Burns his share of the royalty on the ground that it had the right to use the invention without the payment of royalty. The Supreme Court held "If an officer in the military service, not especially employed to make experiments with a view to suggest improvements, devises a new and valuable improvement in arms, tents or other kind of war material, he is entitled to the benefit of it, and to letters patent for the improvement from the United States, equally with any other citizen not engaged in said service; and the Government cannot, after the patent is issued, make use of the improvement any more than a private individual without license of the inventor or making compensation to him."

American Stoker Co. v. Underfeed Stoker Co. 182 Fed. Rep. 642. Garden, while president of the Jogada Furnace Co. invented an improved furnace and secured Patent No. 648,251. He resigned and sold his patent to the American Company, which later brought an infringement suit against the Underfeed Company. The defendant contended that it had bought out the Jogada Company and that since Garden had made the invention while in the employ of the Jogada Company, neither Garden nor his assignee could sue

the Jogada Company or its successor in business for infringement. This defense was swept aside on the ground that Garden had no duty to invent while in the employ of the Jogada Company.

Lambert Tire and Rubber Co. v. Brubaker Tire Co. 5 Fed. Rep. (2nd) 414. The Lambert Company had employed Brubaker in his spare time to devise a cushion tire and a mold to manufacture it. Brubaker developed several designs and assigned them to his employers. The Lambert Company had given Brubaker certain drawings containing data from which he was to develop a new process. Brubaker stated that the process could not be worked out with his employer's ideas and the matter was dropped. Later Brubaker in his own time and at his own expense designed and perfected a new tire and secured Patent No. 1,414,252. The patent was held to belong to Brubaker because there was no evidence that Brubaker had agreed to develop the new tire for the company and, furthermore, the company had accepted compensation from Brubaker for making several experimental tires embodying his invention.

Houghton v. United States 23 Fed. Rep. (2nd) 386. The Public Health Service of the Treasury Department had been experimenting in an endeavor to produce a safe fumigant for ships from a mixture of hydrocyanic gas and an irritant or warning gas such as cyanogen chloride. Houghton, a trained chemist in the Bureau of Chemistry in the Department of Agriculture, was transferred and assigned to cooperate with the Public Health Service in determining how best to produce and combine the gases so as to achieve the desired results. Houghton succeeded in producing a satisfactory product and he applied for and was granted Patent No. 1,521,537 which he claimed as his own property. The court held that since Houghton had been specifically assigned to the duty of making the necessary experiments, the resulting invention belonged to the Government.

Dowse v. Federal Rubber Co. 254. Fed. Rep. 308. Mr. Willys of the Willys-Overland Company established a plant for the manufacture of tires, of which subject he knew very little, and hired, Dowse, a skilled tire man, to run the plant as president and general manager. Willys put up all the money and paid Dowse well for his work. Business became slack and it became necessary for Dowse and his men to devote a large portion of their energies to developing a product that would attract trade. Dowse succeeded in inventing a method for reenforcing tires and obtained Patent No. 1,174,238, which was paid for by the company. The company also spent large sums in advertising the product of the new method, the so-called "double-cable base" tire. The court held that the company was entitled to the ownership of the patent since the patent was the very basis of the company's business and the facts showed that the company had really been started in reliance upon Dowse's knowledge of the tire business.

The Standard Parts Co. v. Peck 264 U. S. 52; 1924 C. D. 482. Peck sued the Standard Parts Co. for infringement of Patent No. 1,249,473 for a machine for making automobile springs. The defendant contended that it owned the patent by virtue of the fact that Peck, the plaintiff, had made the invention while in the employ of the defendant's predecessor in business. In support of its claim it produced a contract of employment whereby Peck agreed to devote his time to the development of a process and machinery for the production of automobile springs. The Supreme Court held that Peck had done only what he had been specifically hired to do and that the patent really belonged to the defendant who had succeeded to his employer's business.

Magnetic Mfg. Co. v. Dings Magnetic Separator Co. 16 Fed. Rep. (2nd) 739. Bethke had been employed by the Dings Company. There was no written contract of employment but his position called for services as draftsman or engineer, purchasing agent, time-keeper and trouble man. He also agreed specifically to devote part of his time to the development of new or improved magnetic separators. In accordance with his agreement he made and assigned several inventions to the company. However, when he made the invention of Patent No. 1,369,516, he resigned and with two of his fellow employees became director of a competing company. The court held that the patent belonged to his employer and that it was immaterial that the employment contract was not in writing.

Goodyear Tire & Rubber Co. v. Miller 22 Fed. Rep. (2nd) 353. Miller was employed in a department of the Goodyear Company, the function of which it was to improve old processes and devices and to discover new processes and devices. Miller was specifically assigned to the task of developing and building a device for holding and rotating a tire while it was being lined. Miller had made a written contract of employment in which he specifically agreed to assign all his inventions made in the course of his employment to the company, but the court held that the company would have been entitled to the patents even in the absence of the written agreement.

McClurg v. Kingsland 1 Howard 202. Harley while in Kingsland's employ invented a method of casting rolls in which the stream of molten metal is introduced into the mold in a direction tangential to the axis of the roll in order to cause the slag and dross to collect at the center of the roll. The work was done at Kingsland's time and expense and Harley's salary was raised as a reward for the improvement that he had made though he had never demanded extra compensation. He did, however, suggest that Kingsland buy the patent. Later, Harley left Kingsland's employ and assigned the patent to McClurg who sued Kingsland for infringement. The suit was dismissed on the ground that Kingsland had acquired a shop-right in the patent.

Gill v. United States 160. S. 426. Gill was employed as a machinist at the Frankford Arsenal in Philadelphia. His position required him to exercise his mechanical skill but not his inventive ingenuity. While at the arsenal Gill made several inventions relating to military appliances using government time and materials. Through his influence with the officer in charge of the arsenal, he got the arsenal to adopt his machinery. A suit for compensation against the Government was dismissed on the ground that the property, equipment and the time of the Government had been utilized in perfecting the inventions and that Gill had acquiesced in their use by the Government.

Solomons v. United States 137 U. S. 342. Clark, while chief of the Bureau of Engraving, was assigned the task of devising a self cancelling revenue stamp. Later he obtained a patent and sold it to Solomons who sued the Government for infringement. The suit was dismissed on the ground that the Government had acquired at least a shop-right in the invention.

Callahan v. Capron Co. 280 Fed. Rep. 254. Callahan was a foreman in the plant of the Capron Co., which manufactured a collar holder. Being threatened with an infringement suit, the company asked Callahan to devise a non-infringing device. Callahan developed a new type of holder using the time and material of his employer as well as the assistance of a fellow employee. After the company had placed the device on the market in considerable numbers without Callahan's having demanded extra compensation, Callahan sued the company for infringement of his Patent No. 1,377,804, which covered the device. It was held that the company had a shop-right and could use the invention without paying royalty.

It follows from the illustrative cases that the Government has no greater right to an invention made by one of its employees than any other employer. A case in point is that of United States v. Dubilier Condenser Corp. 49 Fed. Rep. (2nd) 306. Lowell and Dunmore while engaged in research at the Bureau of Standards made certain inventions rendering it possible to use the ordinary house light alternating current in the operation of radio receiving sets and obtained Patents Nos. 1,455,141; 1,606,212 and 1,635,117. The patentees gave the Dubilier Corporation an exclusive license to use the inventions subject to a shop-right in the Government. The Government was not content with a mere shop-right and sued

to compel an assignment of the entire right, title and interest in the patents on the ground that the radio research problems had been assigned to the inventors by their superiors in the course of their employment and that they utilized the facilities of the bureau in perfecting their inventions. The court refused to compel an assignment to the Government on the following grounds:—

That there was no written or oral agreement on the part of the inventors to convey any inventions developed in the course of their employment to the Government; that the Bureau of Standards was not created for the purpose of making inventions though a large part of its work is directed to research; that the character of the inventors' work at the Bureau raised no implication of an agreement to convey patents; and that there had been no assignment to the inventors of any problem involving the inventions in question. Furthermore, the court appeared to agree with the inventors that the Government had been fully compensated for the use of its facilities by a shop-right.

The question as to an employer's right to an invention can be raised only by the employer himself or by one claiming a right by virtue of an agreement with the employer. Thus, in the case of Dubilier Condenser Corp. v. Radio Corp. of America 34 Fed. Rep. (2nd) 450, brought for the infringement of the radio patents to Dunmore and Lowell, the court refused to consider the contention of the Radio Corp. that the patents really belonged to the Government.

Sulphur Burning Equipment for Sulphite Mills*

By Asbjorn Aasen[1]

When burning sulphur in suitable furnaces it is desired to produce a gas mixture containing as high a volume percentage of sulphur dioxide as possible.

In the combustion of sulphur to sulphur dioxide, SO_2, there always will be present a certain amount of nitrogen, N_2, and excess oxygen, O_2, originating from the supplied air necessary for combustion. Furthermore there will be produced some sulphur trioxide, SO_3, and there also is a possibility of being left unburned sulphur vapor, which will be condensed when the combustion gases cool down and by further cooling converted into solid sulphur.

With the exception of SO_2 all the above items are either harmful to the manufacturing process of pulp or represent an economic loss and therefore should be avoided.

To be able to do the latter, however, it is necessary to know under what conditions the items are present. As there are a number of variables in the manufacture of SO_2, and thus to facilitate the judgment of what importance and influence each item is, we will analyze them separately.

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 15-18, 1932.
Contribution of the TAPPI equipment committee.
[1] Assoc. Member TAPPI, engineer M. W. Kellogg Company, Jersey City, N. J.

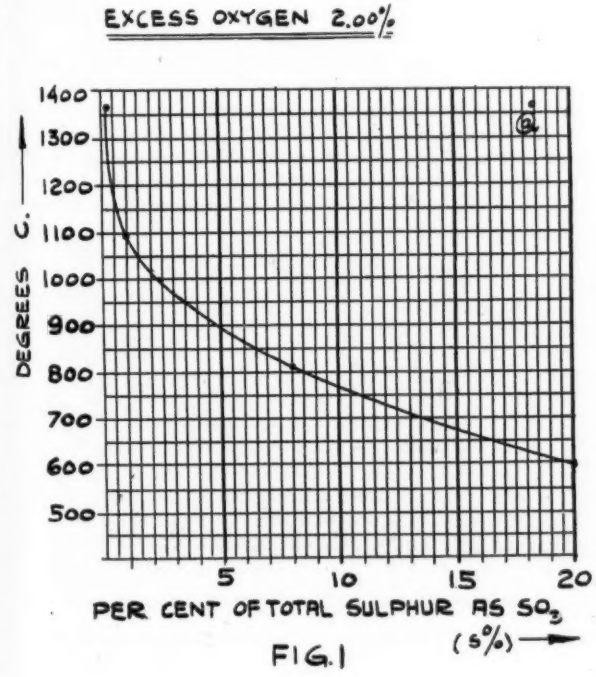


FIG. 1

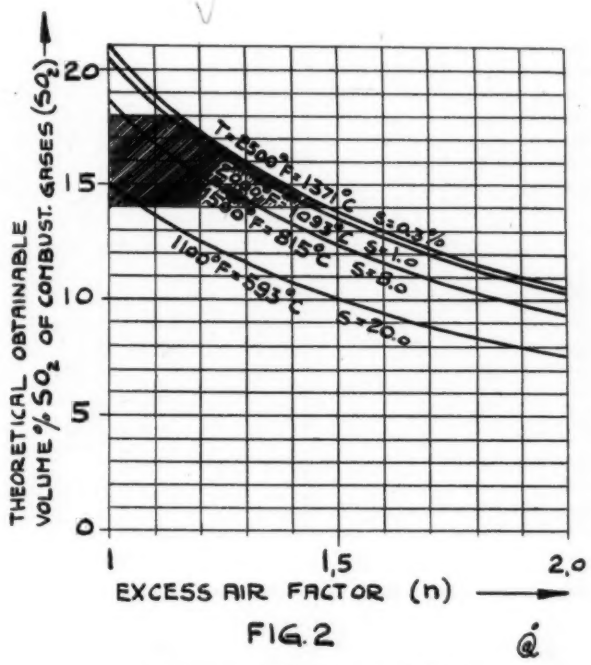


FIG. 2

Oxidation or Combustion of Sulphur

When sufficient oxygen is supplied to sulphur this will be oxidized to sulphur trioxide with a heat of combustion of

$$S + \frac{3}{2} O_2 = SO_3 \qquad H = 85890 \frac{\text{kg. cal}^2}{\text{kg. mol.}} \qquad (1)$$

but also to sulphur dioxide with a heat of combustion of

$$S + O_2 = SO_2 \qquad H = 69660 \frac{\text{kg. cal.}}{\text{kg. mol.}} \qquad (2)$$

How much of 1 kg. mol. will be oxidized to SO_3 and how much to SO_2 depends on the temperature of the combustion gases. When we bear in mind that a chemical reaction always counteracts forces imposed on it the equilibrium at high combustion temperatures will work towards (2) and at low temperatures towards (1).

Equilibrium Between SO_2 and SO_3

After the combustion there will be present in the combustion gases SO_2, SO_3 and O_2, the latter remained excess oxygen from supplied air. The equilibrium between these three gases we can write

$$2\,SO_2 + O_2 \rightleftarrows 2\,SO_3 \qquad (3)$$

This reaction is incomplete and reversible and according to the forces imposed on it, at high temperatures it will work to the left

[2] Lewis and Randall, Hydrodynamics.

side of the equation and at low temperature to the right side of the equation. Furthermore, the equilibrium also depends on the amount of present oxygen.

If the latter is fixed at 2.0 per cent the theoretical amount of sulphur trioxide existing at various temperatures is shown approximately in Table I.[2] (Fig. 1.)

TABLE I

Temperature deg. F	Temperature deg. C	Per cent of total sulphur as sulphur trioxide (s%)
1100	593	20.00
1500	815	8.0
2000	1093	1.0
2500	1371	0.3

It is evident that the above percentage of SO_3 (s%) is identical with the amount of sulphur burned to SO_3, equation (1), because if not, the reaction will continue as shown in (3) as the velocity of reaction of this equation is high at the relative high combustion temperature. At 200 deg. C. the said velocity of reaction is so slow that it is of no practical importance.

Vaporization of Sulphur

Sulphur melts at 119 deg. C. to a thin liquid and gets gradually thicker up to 180 deg. C., then gets thinner again and boils at 445 deg. C. at atmospheric pressure.

The vaporization from a sulphur liquid surface to the surrounding space depends on the area of the exposed surface and on the relative humidity of sulphur vapor of the surrounding space, and increases with increasing surface and decreasing relative humidity.

The absolute humidity is approximately zero at 118 deg. C. and maximum at 445 deg. C.

Theoretical Sulphur Burner

We will assume a sulphur burner with one combustion chamber where sulphur is molten, vaporized and oxidized to either SO_2 or SO_3 under the supply of a certain amount of excess air, that no sulphur vapors remain unburned and that the combustion chamber has a certain heat loss to the surrounding space.

Nomenclature:

s = fraction of 1 kg. sulphur oxidized to SO_3
$1-s$ = fraction of 1 kg. sulphur oxidized to SO_2
SO_2 = volume percentage of SO_2 of combustion gases.
SO_3 = volume percentage of SO_3 of combustion gases.

$$n = \frac{\text{actually supplied air}}{\text{theoretical required air}} = \text{excess air factor.}$$

Because the volume of a gas is in straight proportion to the number of kg. molecules we have:

$$\left[\frac{1+(n-1)(1+\tfrac{1}{2}s)}{32} + \frac{(1+\tfrac{1}{2}s).0{,}768.n}{0{,}232.28}\right]\cdot\frac{SO_3}{100} = \frac{s}{32} \qquad (4)$$

$$\left[\frac{1+(n-1)(1+\tfrac{1}{2}s)}{32} + \frac{(1+\tfrac{1}{2}s).0.768.n}{0.232.28}\right]\cdot\frac{SO_2}{100} = \frac{1-s}{32} \qquad (5)$$

[2] Chas. M. Cooper. Sulphur Burning in Sulphite Acid Manufacture, P. T. J., March 20, 1930. Computed from equilibrium data of Bodenstein & Pohl by Dan B. Wicker.

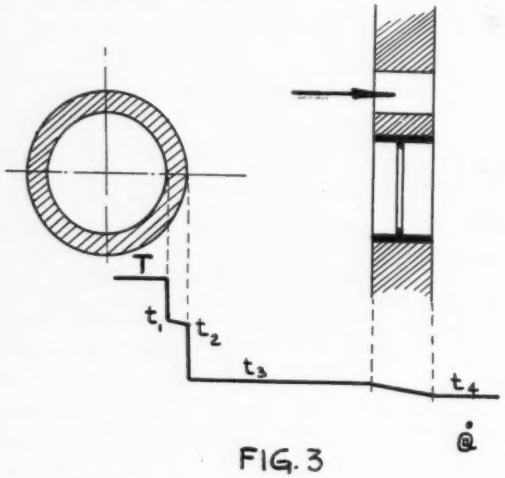


FIG. 3

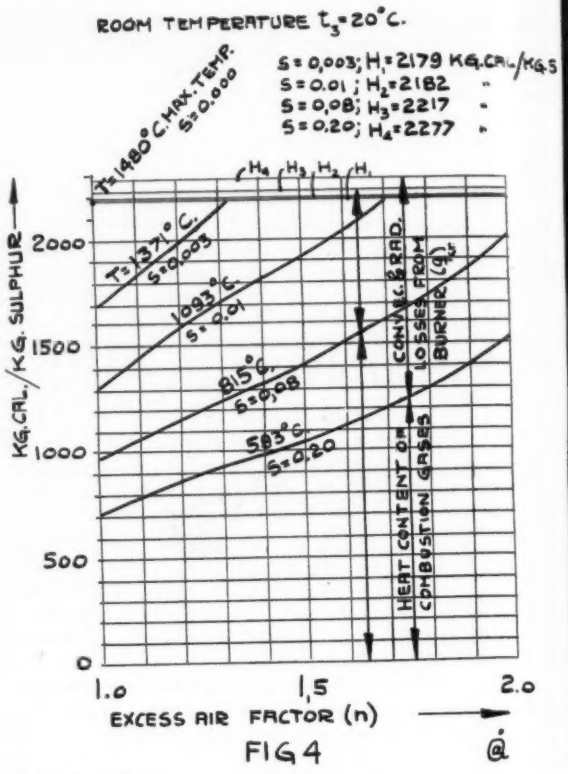


FIG 4

The value of s depends on the combustion temperature of the combustion gases and of the excess oxygen. Suppose the latter is constant and fixed at 2.00 per cent (n = 1.02), then the value of s is identical with per cent of total sulphur as SO_3 as given in Table I, and we can figure out the following Table II:

TABLE II

Deg. F. T	Deg. C. T	Theoretic max. obtainable volume percentage of SO_2 of combust. gases when n = 1.02 Per Cent SO_2
1100	593	14.6
1500	815	18.1
2000	1093	20.19
2500	1371	20.60

Suppose n to be less than or greater than 1.02 then the percentage of sulphur as sulphur trioxide as given in Table I will be some different, how much the writer does not know. It is reasonable however to assume this difference of less practical importance. If we therefore assume s independent of n and dependent of the combustion temperature T as given in Table I we can figure out the following Table III, when T is constant and equal to 2500 deg. F.

TABLE III

T = 2500 Deg. F. = 1371 Deg. C. s = 0.003, independent of n (base n = 1.02)

Excess Air Factor n	Theoretic obtainable volume percentage of SO_2 of combust. gases Per Cent SO_2
1.02	20.60
1.10	18.90
1.20	17.40
1.40	14.80
1.60	13.00
2.00	10.60

Fig. 2 shows the plotting out of equation (5) with the assumtions as mentioned. It shows the relation between excess air supply, combustion temperatures and the volume per cent SO_2 theoretical obtainable for the temperature in question. In sulphite mills it is usual to work with from 14 to 18 per cent SO_2 and therefore variations of SO_2 will take place within the sectioned area as shown.

Heat Balance of Theoretical Sulphur Burner

Nomenclature:

H = heat of combustion of sulphur $\frac{\text{kg. cal.}}{\text{kg. mol.}}$ or $\frac{\text{kg. cal.}}{\text{kg.}}$

Mc_p = molecular specific heat.
Mc_pSO_2 = molecular specific heat of SO_2
Mc_pSO_3 = molecular specific heat of SO_3
Mc_pN_2 = molecular specific heat of N_2 etc.
t_2 = surface temperature of burner.
t_3 = room temperature in sulphur burning plant.
t_4 = outside temperature.
T = combustion temperature of combustion gases. (See Fig. 3.)

The total heat released by burning sulphur

$$H = (69660 + s.16230) \text{ kg. cal./kg. mol.}$$

must be equal to the heat content of the combustion gases leaving the burner plus the heat loss from the burner to the surrounding air (sulphur burner room) by convection and radiation.

We have:

$$2177 + s.501 = \left[\frac{Mc_pSO_2\ SO_3}{32}\right]_{t_2\rightarrow T} + \left(\frac{(n-1)(1+\tfrac{1}{2}s)}{32} + \frac{(1+\tfrac{1}{2}s).0.768n}{0.232.28}\right) \cdot \left[Mc_pN_2\ O_2\right]_{t_2\rightarrow T} \cdot \left[T - t_3\right] + q_{er} \quad \text{kg. cal./kg.S} \qquad (6)$$

where q_{er} is the heat loss from the heated surface of the burner in kg. cal. per kg. sulphur.

In this equation Mc_pSO_2 is assumed equal to Mc_pSO_3 because no data on the latter is available, though the error is of no practical importance. Fig. 4 shows the plotting out of equation (6) for various combustion temperatures and constant room temperature = 20 deg. C. and shows how much heat the sulphur burner room has received per kg. S burned at a certain combustion temperature.

The convection and radiation heat loss from the heated sulphur burner surface to the surrounding air per hour is

$$Q = F.k(t_2 - t_3) \text{ kg. cal./hour} \qquad (7)$$

where
F = heated sulphur burner surface in sq. meter (m^2).
t_2 = heated sulphur burner surface temperature deg. C.
k = coefficient of surface transmission.

If sulphur burned at a rate of D kg./hour the loss per hour will be:

$$Q = D.q_{er} \text{ kg. cal./hour} \qquad (8)$$

This equation is plotted out in Fig. 5c, for various ratings D. F will for a given sulphur burner be constant, but k will increase with increasing $(t_2 - t_3)$.

The heat loss per degree C. of surface temperature of the given burner per hour will be:

$$tg\alpha = F.k = \frac{q_{er}.D}{t_2 - t_3} \text{ kg. cal./1 deg. C. hour} \qquad (9)$$

(See Fig. 5d.)

It is obvious that $tg\alpha$ is in straight proportion to k.

The heat loss from the sulphur burner room will be the heat conducted through the walls to the outside plus the heat lost through heated escaping air to the outside through windows, doors and eventual leakages.

The summation of these to heat losses will be equal to that given in 7 and 8.

$$Q = f.k_1(t_3 - t_4) + Q_{leakage} \text{ kg. cal./hour} \qquad (10)$$

where
f = total surface of walls, windows and doors.
k_1 = average coefficient of heat transmission through walls, windows and doors.
t_3 = average room temperature.
t_4 = outside temperature.

All the previous graphical charts are assembled in Fig. 5. In Fig. 5b the q_{er} values are plotted out from the same zero line (See Fig. 4) and curves for constant volume percentage SO_2 are shown. In Fig. 5d a certain $tg\alpha$ curve is shown, though this depends entirely on the construction of the burner.

It is evident that Fig. 5 will be applicable to sulphur burners of any construction, capacity or rating, and all items involved in the combustion of sulphur are shown dependent on each other.

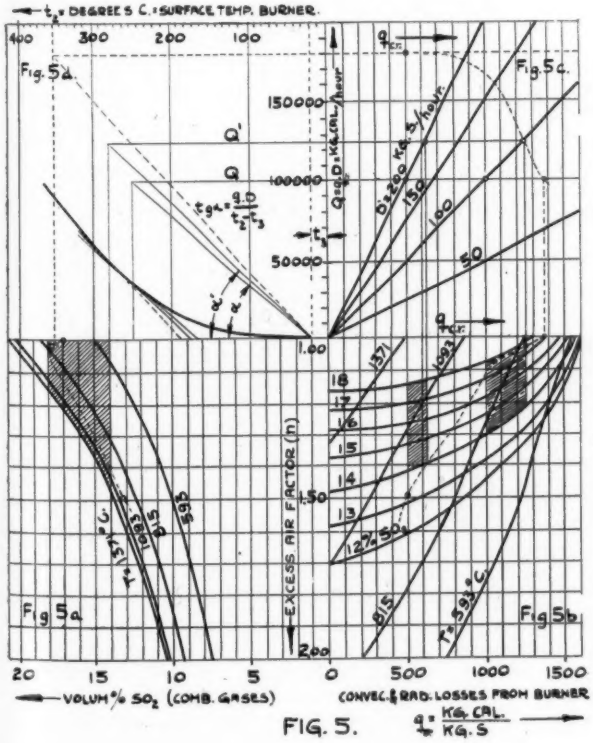


FIG. 5.

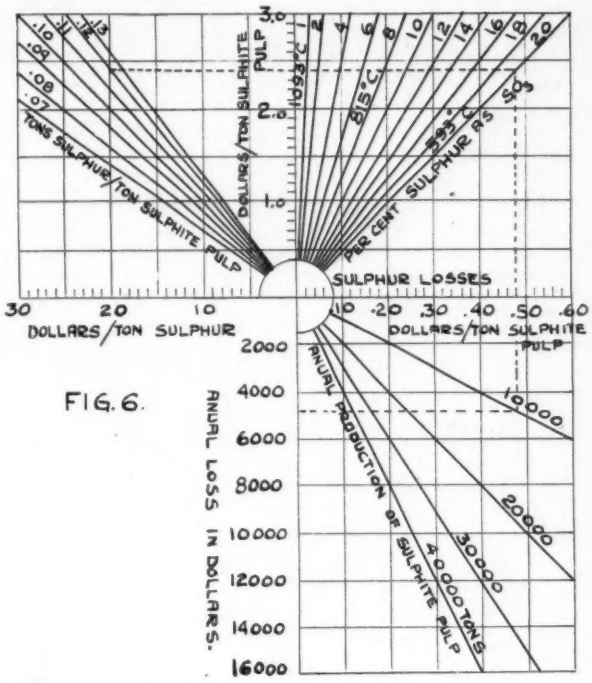


FIG. 6.

Discussion of the Present Sulphur Burners

The present sulphur burners consist of a stationary or rotating uninsulated burner in which solid sulphur is molten, evaporated and burned to SO_2 and SO_3. The unburned sulphur vapors leaving the burner are taken care of in an additional insulated combustion chamber where secondary air is admitted to complete the combustion of these vapors.

As long as the sulphur in the first burner is evaporated at a temperature below the boiling point 445 deg. C. this evaporation depends as previously said on the relative humidity of the surrounding gas mixture and on the area of the exposed liquid surface. The condition of the gas mixture leaving the first burner depends on the "mixing strain" which we could write:

$$\eta = \frac{D + n.L_o.D}{O}$$

where $L_o = \dfrac{1 + \tfrac{1}{2}s}{0{,}232}$ kg. air/kg. S., the theoretical necessary

air for the combustion of 1 kg. S. and O is the effective liquid surface from which the evaporation takes place.

η will be a function of the draft opening and when η gets too big there is a possibility that the gas mixture will contain unburned sulphur vapors.

We will now assume that the secondary air is admitted in a quantity so that a maximum obtainable amount of unburned sulphur vapors leaving the first burner are burned in the combustion chamber. Though this does not mean that all sulphur is burned.

Suppose that the draft openings were kept constant and that we measured the volume per cent SO_2 and the temperature of the final combustion gases, the rate at which sulphur was burned and also the amount of unburned sulphur vapors precipitated in the stack, that means a complete analysis of the combustion gases. The SO_2 per cent and the temperature will determine a point in Fig. 5a (or Fig. 2) and give us the excess air coefficient and sulphur lost as SO_3.

If we then changed the draft opening and adjusted the secondary air as previously mentioned and made the same analyses we could determine another point in Fig. 5. If we made the changes at small intervals and over a wide range a curve would show up in Fig. 5 (assumed dotted curve shown). This curve we will call the characterism of the burner.

This characterism will for any draft opening or excess air coefficient show the volume per cent SO_2, the temperature and sulphur lost as SO_3 at which the burner is operating. The final unburned sulphur does not affect the temperature nor the composition of the final gases because when cooled and precipitated the energy is very close to that before burner.

If as mentioned before the unburned sulphur is measured for each combustion temperature and SO_2 per cent it is possible to determine the total sulphur loss both as unburned S and S lost as SO_3 for a given combustion temperature T.

From the characterism we can determine the most economical point at which the burner should be operated that means where at the same time SO_2 is a maximum, SO_3 and unburned S a minimum.

It is evident that it is erroneous to compare two different sulphur burners running with 14 per cent SO_2 as equally good or bad because one may have a loss of 20 per cent and the other 0.30 per cent (compare Fig. 5a) loss as SO_3, dependent on the combustion temperature.

Unfortunately the point on the characterism at which a burner is being operated depends on the heat balance of the burner and the more the bigger the radiation and convection heat loss is from the burner to the surrounding air and from this to the outside.

The latter is given in equation (10) in which $Q_{leakage}$, the heat lost by the heated escaping air to the outside, is the most dominant.

If the room temperature is to be kept constant within certain limits the total heat loss Q in equation (10) will determine the temperature and the point on the characterism at which the burner must be operated.

Q is in straight proportion to the difference between room temperature and outside temperature and the only regulation left is the adjustment of $Q_{leakage}$ by means of opening and closing of doors and windows.

In other words the present partly insulated sulphur burners are a mixture of a heating stove and an equipment for the manufacture of SO_2, and the operating conditions of the burner depends entirely on the opening of doors and windows and on outside weather conditions as wind velocity and outside temperature.

To be able to determine the magnitude of the variation of Q on the combustion temperature and volume per cent SO_2 of the final combustion gases it is necessary to introduce the "rating characterism" which will be $q_{cr}.D = Q$ plotted out with q_{cr} as abscissa (Fig. 5c, assumed dotted curve) where the rating D is measured as discussed under the development of the characterism. q_{cr} (equation 6) is computed from this said characterism and is nothing else but the heat loss from the burner in kg.cal. per hour in relation to the rate at which sulphur is burned.

To illustrate the influence of Q on the operating conditions of the burner we will assume:

$Q = 100{,}000$ kg. cal./hour.
$t_2 = 250$ deg. C.
$t_3 = 20$ deg. C.
$t_4 = 0$ deg. C.
$F = 18$ m².

This gives

$$k = \frac{100{,}000}{18.230} = 24 \text{ kg. cal./1 deg. C. m}^2 \text{ hour.}$$

which is reasonable.

Suppose the outside temperature dropped to — 5 Deg. C. then the heat loss Q would increase to

$$Q' = \frac{100{,}000\ (20 - -5)}{20 - 0} = 125{,}000 \text{ kg. cal./hour.}$$

Both Q and Q' is shown in Fig. 5c & d. If the rating should be constant which is desirable from a manufacturing view point the variation of the combustion temperature T and volume per cent SO_2 had to take place within the sectioned areas in Fig. 5b.

The draft openings could also be adjusted to meet the new heat loss, that means however new operating conditions and the burner is "moved" to another point on the characterism.

If the burner was left alone the room temperature would drop below 20 deg. C. and decrease combustion temperature T, evaporation of sulphur, rating and per cent SO_2 with increasing excess air factor n.

Whether the variation of Q is caused by outside weather conditions or by opening of doors or windows make no difference.

Conclusion

The present partly insulated sulphur burners therefore are unsatisfactory from an operating and economical view point.

The most favorable conditions obtained in practical mill operations is recorded to about 800 deg. C. combustion temperature with a loss of sulphur of 8.5 per cent as SO_3 and a volume percentage of $SO_2 = 18$ per cent.

This gives an excess air factor of about 1.03 (Fig. 2) and therefore requires very careful adjustment of draft openings and once obtained, quickly will be changed if the heat balance of the burner is disturbed which frequently occur as stated before.

Concerning the annual losses in dollars for sulphite mills originating from low combustion temperatures compare Fig. 6.

Improvements

The higher the combustion temperature of the combustion gases is and the less the heat loss from the burner is, the more independent the combustion process will be of outside disturbance. The ideal sulphur burner should have no hampering "mixing strain" and no heat loss.

This can be accomplished by converting the sulphur into powder and thoroughly mix it with the required air for combustion in a suitable burner before the mixture is admitted to one complete insulated combustion chamber where the combustion takes place similar to the "Freeman Furnace" for burning pyrites recently in the market.

Gas Cooling Equipment

Suppose a very high combustion temperature in a sulphur burner is obtained and therefore very little sulphur is lost as SO_3 but that the combustion gases were slowly cooled down. Then the reaction between SO_2 and O_2 will go after equation (3) and the high combustion temperature is in vain.

Therefore after a high combustion temperature should follow an immediate cooling down to 200 deg. C. where said reaction is of no importance.

This can best be accomplished by water showers and the heated water leaving the showers should be close to 100 deg. C. where the SO_2 content of water is negligible at atmospheric pressure.

POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

Conducted by **Reginald Trautschold Consulting Engineer**

Modern Feed Water Regulation—II*

Generators and Controllers

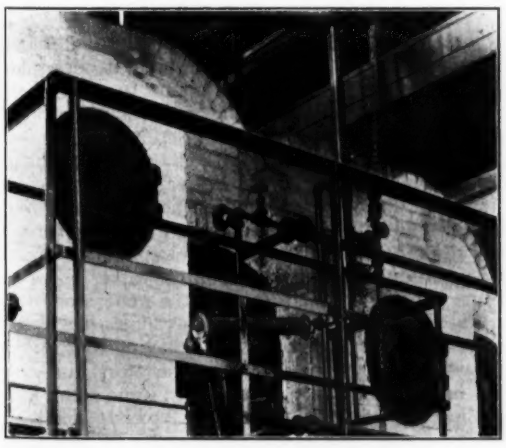
The need for sensitive, automatic feed water regulation in present day boiler operation is due to the fact that the excess pressure, the differential between the water entering the boiler and the actual boiler pressure, has to be varied with the rate at which the boiler is operated. This, because the boiler furnace requires a certain amount of time in which to adjust itself to reduced or increased load conditions, if they have been at all marked, before any considerable change in water level can be safely made or any abnormal quantity of water fed to the boiler. A sudden increase in load, resulting in a drop in boiler pressure, releases heat stored in the water, liberating great numbers of small steam bubbles throughout the water and causing the water level to rise. Likewise, with a sudden decrease in load, causing an increase in boiler pressure, excess heat is obsorbed by the water and the tendency is for the water level to drop.

With a properly designed and proportioned feed water regulator functioning, these dangerous tendencies are held in bound and in large measure circumvented. When a drop in boiler pressure follows a sudden demand for steam and a stimulated water supply is required to maintain a constant weight of water in the boiler, such a control valve first cuts down temporarily on the feed rate and allows the furnace to adjust itself to the increased load demands. On the other hand, if the load drops off suddenly, the properly designed feed water regulating valve first opens and increases the rate of feed water flow to the boiler, so as to absorb the excess heat being liberated by the furnace until the furnace conditions are readjusted to the reduced load conditions.

Less water is supplied when greater steam demands suddenly develop, in order to keep up the steam pressure and more water when steam demands drop rapidly to prevent a dangerous increase in steam pressure. The success with which this is accomplished is measured, strange as it may seem, by the constancy of water level maintained in the boiler. The best results are secured when the excess pressure follows the rate of steam generation, or boiler rating, for the rate of feed, depending upon the opening of the regulating control valve, varies inversely with the excess pressure. In fact, as pointed out in the discussion on automatic feed water regulation that appeared in these columns April 16, 1931, a definite relationship exists between the required excess pressure and the boiler rating, or rate of steam generation. The quantity of feed water admitted should vary as the square root of the excess pressure.

This is readily realized when it is appreciated that with constant excess pressure the rate of boiler feed is also of necessity substantially constant, so that when there is an increase in steam demand there is also a gradual lowering of the water level in the boiler and a gradual elevation in water level with a decrease in steam demand. Draining the boiler at high ratings is a most hazardous practice

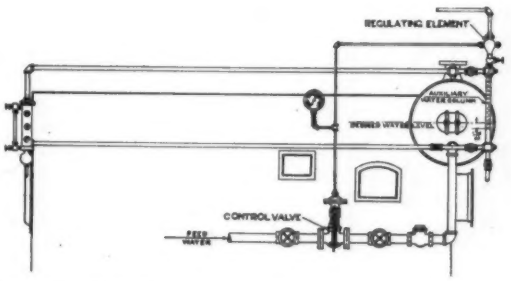
* For previous discussions on feed watér regulation see PAPER TRADE JOURNAL, Feb. 9, 1928, April 16, 1931 and March 3, 1932.



Courtesy: Bailey Meter Co.

FIG. 1

Feed water regulator generator installed, straddling the water line, on a 462 h.p. boiler.



Courtesy: Atlas Valve Co.

FIG. 2

Typical installation of feed water regulating system on cross drum boiler with generator mounted on auxiliary water column.

and flooding the boiler at low ratings means a material decrease in boiler efficiency.

Control by Throttling Regulation

The modern regulating, or feed water control, valve, by which a substantially constant water level is maintained under any and all conditions of boiler operation, is actuated automatically, directly or indirectly, by the level of the water in the boiler and it controls the rate of boiler feed by so-termed throttling regulation. The pressure in the main feed line must be adequate to meet all possible demands, of course, but it is the regulating valve in the main feed line that governs the admission of the water to the boiler.

Just how sensitively a well proportioned feed water regulator can function under trying conditions is well shown by the results secured in the case of a 6,250 square foot (heating surface) boiler subjected, in a period of a little over an hour, to steam demands fluctuating between 100 and 300 per cent of boiler rating. During this same period, the main feed line pressure varied between the limits of 260 and about 242 pounds per square inch, while the drum pressure, which naturally followed the boiler rating, seesawed between 210 and 225 pounds per square inch. The water level in the boiler, however, did not vary an inch, up or down.

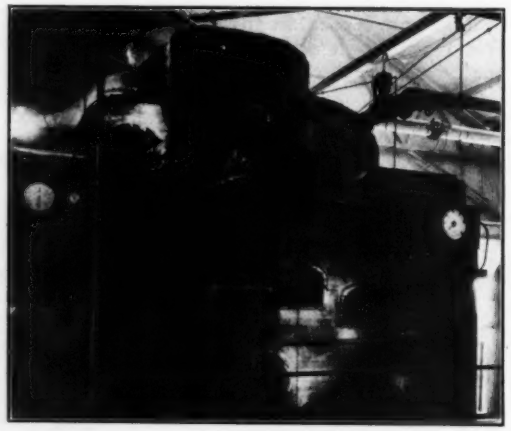
Steaming at 100 per cent. rating, the excess pressure was held by the regulating valve at slightly more than 3 pounds; at 200 per cent rating, at about 12 pounds; 300 per cent rating, 27 pounds; 250 per cent rating, in the neighborhood of 18 pounds; and at 150 per cent steaming rate, between 6 and 7 pounds. At these critical points, the differential between the main feed line and the drum pressures were approximately and respectively; 30, 27, 28, 40 and 42 pounds per square inch.

TABLE I—EXCESS PRESSURE STATISTICS, 6,250 SQ. FT. BOILER (WATER LEVEL MAINTAINED SUBSTANTIALLY CONSTANT)

	Pressure, lbs. per sq. in.			
Boiler Rating	Excess	Drum	Main Feed Line	Differential
100	3	210	242	32
200	12	213	250	27
300	27	223	251	28
250	18	218	258	40
150	6-7	210	252	42

Smoot Engineering Corp.

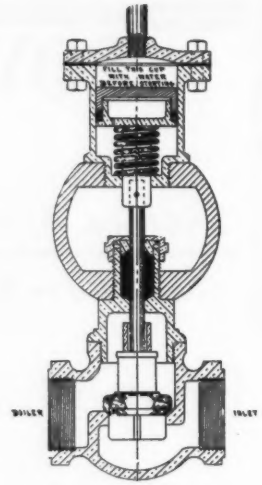
From these figures, it is evident that at 300 per cent rating, when the highest excess pressure was required, the differential was, while adequate, none too great. At one period, the differential also provided no great leeway, for when the boiler was steaming at a rate of about 228 per cent of rating, calling for an excess pressure of 17 or 18 pounds, the main feed line pressure was only a little over 240 pounds and the drum pressure around 219 pounds, thus providing a differential pressure of 21 pounds, the lowest during the 70 minutes the boiler was under observation. The highest differential, 42 pounds per square inch, occurred while the boiler was operating at about 150 per cent of rating, when an excess pressure of only between 6 and 7 pounds was required.



Courtesy: Atlas Valve Co.

FIG. 3

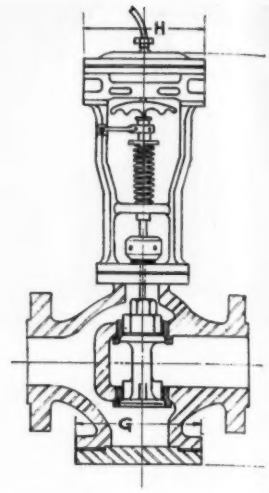
Feed water regulator installation on 420 h p. boiler in plant of the Bogalusa Paper Co., Bogalusa, La.



The Chaplin-Fulton Mfg. Co.

FIG. 4

Single port feed water control valve.



Swartwout Co.

FIG. 5

Double port feed water control valve.

It is quite obvious from such analysis that there is little or no relationship between the available main feed line pressure differential and the required excess pressure, so far as the maintenance of a substantially constant water level in the boiler is concerned. Certainly, nothing of a sufficiently dependable character upon which to base control. The control, perforce automatic in the interests of safety and economy, devolves, then, upon the regulating, feed water control, valve, making such unit one of the most essential of accessories in modern boiler plant operation.

Generator Characteristics

While a certain limited variation in boiler water level is unavoidable and, as has been pointed out, desirable in providing time for furnace adjustments to marked variations in steam demand, it is the maintenance of a substantially constant water level in the boiler, for safety and economy, that constitutes the basic control; that is the primary function of the regulating valve. It is the variations in water line, sharply limited as they well may be, that are instrumental in creating the actuating force that governs, directly or indirectly, the automatic manipulation of the regulating, or feed water control valve.

The mechanism entailed, termed the generator, may be of several forms and may embody somewhat different principles of operation, all, however, having to do with the water level in the boiler. These generators and characteristics have already been described in some detail in these columns, notably in the discussion as April 16, 1931. They may be conveniently classified in a few general groups: those actuated by the expansion and contraction of a heavy metallic tube connected by a lever to the control valve in the feed line; by steam and water pressure entailing a tube

connection between the generator straddling the water line in the boiler and the diaphragm or syphon of the control valve; by counter-balanced displacement of a weight by variations in water level; by a float arrangement in a regulator column that manipulates a pilot valve governing steam pressure on a piston operated regulator control valve; and by a sampling tube extending from the generator down into the water column of the boiler that governs the steam pressure transmitted to and exerted against the diaphragm of the control valve in the feed line.

The most recent development, described in detail in these columns on March 3rd, employs electrical transmission for the control of the motor operated control valve and while this system of feed water regulation functions primarily from the steam flow from the boiler served, the water level in the boiler steam drum is also a controlling factor and the variations occurring in boiler water level are confined within safe operating limits. The recent consideration of this so-termed "three element" feed water control system and its comparative newness preclude presenting evidence here of the savings its use unquestionably brings about, while the saving of from 16,000 to 20,000 pounds of steam per day is evidence enough of the value of the thermo-hydraulic feed water level control system employed by the Eaton-Dikeman Company of Lee, Mass., which also was described March 3rd.

Economies Effected

The discussion of last April also featured an installation of modern feed water regulation at the Hamilton, O., plant of the Champion Coated Paper Company, where the resulting saving in payroll burden alone is reputed to be equivalent to an annual return upon the investment entailed of at least 300 per cent. Of much the same high order is the more recent experience of the Bogalusa Paper Company down in Bogalusa, La., where the system of feed water regulation described in the discussion of April 16, 1931, as employing a regulating element on the water column has been caring for the past year or so for the feed water supply needs of 420-horsepower boilers fired on waste heat.

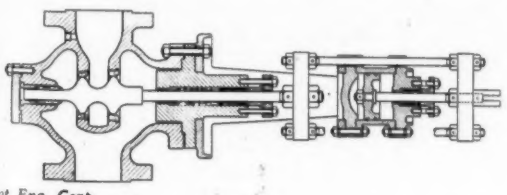
J. T. Boyd, engineer of the plant, is well pleased with this system and advises:

"These regulators have operated perfectly since installed over a year ago. Have never made any repairs or adjustments.

"As to saving in money—cannot say exactly, but it stands to reason that they save, due to carrying a constant water level—less chance of boilers running dry or running over and too it does not require a man to stand and watch the water as he performs other duties as well."

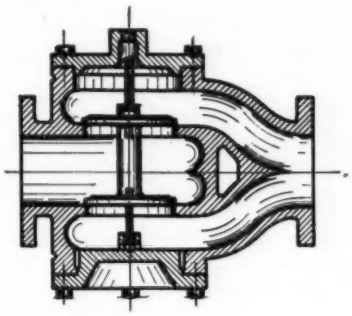
Control Valve Characteristics

Whatever the form or variety of generator employed, the regulating, or feed water control, valve in the feed water main is, however, the mechanism that actually controls the feed water supply by throttling regulation, the unit subjected to most wear and the part governing the capacity of the regulating system. The characteristics of these control valves are, consequently, all important and play a dominating part in the quality of the feed water regulation provided.



Smoot Eng. Corp.

FIG. 6
Hydraulically high pressure control valve.

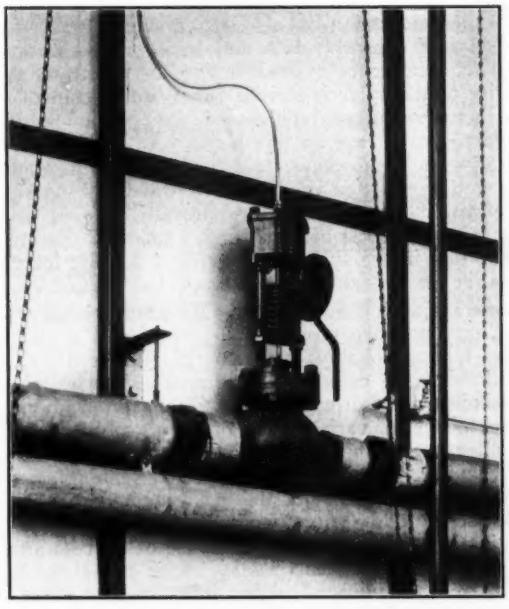


Courtesy: The Fisher Governor Co.

FIG. 7
Low Pressure body, 'streamline,' control valve.

The globe form of valve, either of the single or double balanced disc valve construction, is customarily employed, the valve discs, or plugs, being raised from their ports by lever constructions, by diaphragm motors of either direct acting or pilot operated pressure controller varieties, etc., actuated by the generator unit of the feed water regulating systems. The body structures and characteristics of these valves are of outstanding concern, for it is upon them that the satisfactory coordination of feed water supply regulation and furnace adjustments to load conditions devolves in large part.

It is not the intention to attempt any comparisons regarding the relative merits of single port and double port valve constructions, for there are examples of excellent controller valves embodying both designs, or constructions, but rather to draw attention to some of the general valve characteristics necessary for securing good throttling regulation and to emphasize the need of proper timing, of



Courtesy: Bailey Meter Co.

FIG. 8
Control valve in main feed line.

synchronizing so far as feasible the operations of furnace adjustment and of feed water supply.

In the first place, the control valve should be of adequate capacity, i.e., when wide open, it should be capable of responding promptly and adequately to any possible maximum demand. Considerations of body design and proportions as well as of inner valve travel are entailed, for even should the flow pass through ample ports and chambers within the valve body, the inner valve travel be perfectly satisfactory, the valve body design may cause turbulence and friction losses that are extremely detrimental to efficient throttling regulation, making the valve sluggish an wasteful of pressure. Securing a satisfactory passage through the inner ports with a minimum pressure drop across the faces or ports of the inner valve, the pressure head should not be greatly modified by the flow loss and turbulence losses through the body of the valve structure.

An oversized valve, though preferable to one lacking adequate capacity when heavy demands are encountered, will operate close to its seat, i.e., will pass relatively large volumes with small valve lift, causing costly wire drawing, possibly whistling and chattering, and making the realization of good throttling regulation difficult. An undersized valve, while making for more sensitive regulation of lower rates of flow, introduce serious hazards when feed demands are high and may be too slow, even within its limited capacity range. Timing requirements as well as considerations of valve wear and upkeep are entailed, necessitating experience and the exercise of much skill in correlating diversing tendencies and in the determination of satisfactory valve proportions, designs and constructions.

A low pressure drop body of "streamline" design is desirable and for sensitiveness in throttling regulation a relatively small valve in a commodious body structure. The effect of streamlining the valve body, incidentally, may be so pronounced as to permit the use of a somewhat smaller valve than would be employed customarily for regulating service.

Much consideration has also been given to the flow characteristics of control valves and while a flow characteristic that approaches a straight line up to the maximum capacity of the valve is striven for by some control valve manufacturers, other builders of feed water regulators apparently lay stress on this point. An attempt is quite generally made, however, to have the flow through the valve a direct factor of the valve travel throughout its entire range. This is desirable, naturally, since it tends to increase sensitiveness of regulation, a small change in force or condition in the system producing a definite increment change in the capacity of the valves.

These are all in the nature of refinements, however, the value of which are measured in the results actually secured. Unquestionably, variations in main feed line pressures have to be cared for, the use of superheaters and other boiler accessories may introduce complications and the possibilities of variations in almost all conditions effecting boiler operation are always present. Altogether, the responsibilities thrown on the feed water regulating system are exacting and arduous and no system of feed water regulation should be adopted without thorough preliminary investigation. Of course, the measure of success attained is of necessity somewhat elastic, but if a system proves capable of maintaining a substantially constant water level in the boiler under all conditions of operation, it is a good indication that the needs of the particular boiler are pretty well met in respect to safety and economy and that the timing of furnace adjustments and the supplying of boiler feed has been well balanced.

Safety and economy are secured and good timing shown by: maintaining a safe low water level within narrow limits; aiding the boiler in delivering uniformly dry steam; reducing the quantity of steam needed to carry a definite load; saving in fuel, due to more uniform steam pressure; cutting down the losses contracted in rehandling condensate in pipes; and reducing labor and material costs in operation, upkeep and repairs on boilers, turbines, engines, pumps and piping.

FAIR DEMAND IN BOSTON

(Continued from page 24)

conducting a contest running from April 1 to June 15, among the salesmen of the Andrews Paper Company on Despatch Resource, Lancaster Radiance, Valiant Bond and their several grades of ledger. The Gilbert Paper Company are to award cash prizes.

News of the Trade

William T. Massey has announced that the business of Massey & Wendell, Inc., formerly conducted at 110 High street, has been dissolved and that he is now associated with Hurlbert & Hatfield, 596 Atlantic Avenue. The announcement is dated April 1. The firm dealt in wrapping paper and specialties, with Mr. Massey as president-treasurer and John W. Wendell as secretary. Mr. Wendell is now connected with the Andrews Paper Company.

A meeting of the sales staff of Storrs & Bement Company was held at the office of the firm Saturday morning, with William Stetson, Jr., president, and John H. Brewer, general manager, presiding. Paterson Cotton Content Parchment, of which the company has become a distributor, was discussed. This sheet has an unusual parchment surface and a large cotton content, made in writing paper sizes, and used for writing papers, folders, menus and French fold covers.

John Carter & Co. Inc. have brought out a revised price list of Dill & Collins papers, April, 1932, including coated and uncoated, book papers, translucents, covers and mimeographs. John Carter & Co. are New England distributors of these papers. Grellet Collins, president of the Dill & Collins Company, Philadelphia, was in Boston last week, calling at the offices of their representatives.

Knight, Allen & Clark, Inc., have received sample books of the Woodbine Duplex Post Card, which they are stocking as a companion line to Woodbine Duplex Enamel, made by the Appleton Coated Paper Company, Appleton, Wis., for advertising purposes. The cards are put on the market in gray and rose, golden rod and primrose, turquoise and India, sun tan and white, emerald and green, and orange and white.

The Marvellum Company has brought out a new line of box coverings in Cretonne papers, Book No. 71. The papers are made in six attractive colors. Henry L. Goodman is New England representative of the manufacturers. Paul Houston, vice-president of the Marvellum Company, called on the trade here last week, accompanied by Robert A. Ford, of Henry L. Goodman.

The D. F. Monroe Company has taken an agency for Kodapak, the transparent paper made by the Eastman Kodak Company, Rochester, N. Y.

The Connecticut Valley Engraving Company, Springfield, Mass., has been incorporated. The capital stock is $4,200. There are 168 shares, $25 each. The president is Frederick C. Wesley; vice-president, Herman A. Provost, and the treasurer George Ringchrist, 67 Baltimore street, Springfield.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

ALLIGATOR
TRADE MARK REG. U.S. PAT. OFF.
STEEL BELT LACING

Distinctive Among Belt Lacings

Only Alligator Steel Belt Lacing combines the features of (1) a smooth, flexible, rocking joint (2) great surplus strength (3) preservation of the belt ends and (4) easy, rapid application with a hammer as the only tool. It compresses the belt end in a powerful vise-like grip. No holes to punch. Often lasts the full life of the belt. Suitable for all types of belting. Eleven sizes. Made also in Monel Metal. Sold throughout the world.

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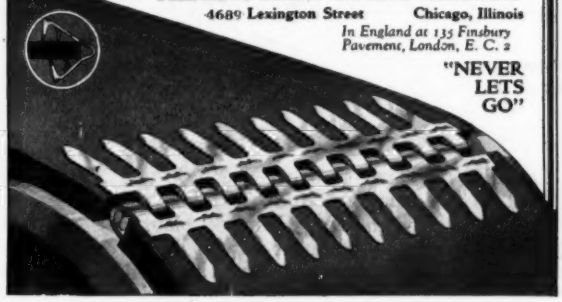

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EXTENSION MODEL

Cambridge Surface Pyrometer

is an instrument which applied to the surface of a dryer or calender roll, instantly indicates the exact surface temperature. Its use enables the operator to locate water logged rolls and to maintain every roll at the correct temperature for efficient progressive drying.

The instrument is compact, rugged and easy to read. The extension rod permits temperature checking across the entire roll. Scale ranges are 50-250° and 50-400°F.

Send for List No. 194-P.T.

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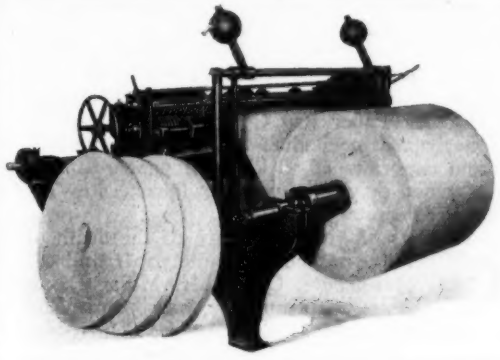

HEAVY DUTY SLITTER and REWINDER

Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1″ wide and 48″ diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1″ width and up. Made in three widths: 48″—60″—72″.

INMAN MANUFACTURING COMPANY
AMSTERDAM, N. Y.

Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

Ontario Pulp and Paper Manufacturers Meet

Survey of Safety Work Shows Reduction In Fatal Accidents at Mills, While All Accidents Have Been Proportionately Reduced—Tribute Paid to Cooperation by Workmen's Compensation Board—A. T. Brown Elected President for Ensuing Term

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, April 11, 1932—A survey of safety matters in connection with the pulp and paper industry of Ontario was taken by the Ontario Pulp and Paper Makers Association at the annual meeting of that organization held, following a dinner, at the King Edward Hotel on April 6, when cheering reports indicating substantial reductions in fatal and non-fatal accidents for the current year, were presented both by President E. Howard Smith and Secretary-Engineer A. P. Costigane. It was indicated that fatal accidents had been reduced from seven in 1930 to three in 1931 and all accidents had been proportionately reduced.

First Aid and Nursing Service

Dealing with first aid and nursing service Mr. Smith declared that these had not received the attention they merited and he expressed the conviction that the mills had far too few nurses to handle the amount of work entailed. He also mentioned the fact that out of the forty-seven mills reporting to the association only a very small percentage of them had entered teams in the safety contest. The primary factor to stimulate interest in safety work throughout the industry, he declared, was the necessary cooperation of both workmen, executives, and plant foremen in the various plants and by training first-aid teams it was possible to create interest in the work while perhaps not reducing the number of accidents.

Mr. Smith stressed the viewpoint of humanitarianism in the safety work of the pulp and paper industry and declared that this should not be allowed to lag now that the plant executives were busy trying to keep the companies from losing money. Mr. Costigane in his report quoted figures indicating that money had been saved and earned to the industry by the reduction in fatal and non-fatal accidents amounting to approximately forty thousand dollars, so that the cumulative effect of the organization was bearing substantial fruit.

He paid tribute to the cooperation afforded by the Workmen's Compensation Board and dealing with the fact that the non-fatal accidents had been reduced from 926 to 597, he mentioned that all cases calling for medical aid only were included. Generally speaking, the percentage of improvement was 35 per cent better than in the previous year. Mr. Costigane expressed the belief that if efficient supervision was maintained during the coming year even greater improvements would be recorded.

Trophy and Medals Presented

An interesting feature of the meeting was the presentation of first-aid trophy and medals. Spruce Falls Company won the safety contest, the runners up being the Abitibi Power and Paper Company, while E. Pullan, Ltd., were the winners in Class "B". Winners of the first-aid contest were the Alliance Paper Mills, Ltd., Merriton, with 98 points out of 100. Howard Smith Paper Mills were the runners up with a record of 95 points.

At a meeting of the directors following the annual meeting, A. T. Brown, of E. Pullan, Ltd., was elected president and C. B. Thorne, of the International Paper Co., Hawkesley, Ont., vice-president. A. P. Costigane was again selected for his old post, that of secretary-engineer. The following directors were chosen: E. Howard Smith, Howard Smith Paper Mills, Ltd., Montreal; A. T. Brown, E. Pullan, Ltd., Toronto; J. E. Patterson, Abitibi Power and Paper Company, Toronto; George Carruthers, Interlake, Tissue Mills, Ltd., Toronto; C. B. Throne, Canadian International Paper Company, Hawkesbury, Ont.; Frank Mitchell, Abitibi Power and Paper Company, Toronto; B. F. Avery, Abitibi Power and Paper Company, Toronto; John Ball, Beaver Wood Fibre Company, Ltd., Thorold; N. E. Wainwright, Don Valley Paper Company, Toronto; D. L. McLeod, Ontario Paper Company, Thorold; J. S. Wilson, Dryden Paper Company, Dryden; J. H. Albert, J. R. Booth Company, Ottawa; E. S. Noble, Spruce Falls Pulp and Paper Company, Kapuskasing; D. McLeod, Kenora Paper Mills, Kenora; W. S. Barber, Provincial Paper Mills, Toronto; L. V. Winchell, Hinde & Dauch Paper Company of Canada, Toronto.

Ontario's forest fire-fighters, protecting the province's pulpwood, will face the hazards of the coming year with a considerably decreased staff, it was revealed in the Ontario Legislature by the Hon. William Finlayson, Minister of Lands and Forests, during passage of the 1933 estimates for his department. Three airplanes on detection and suppression work will be discarded and a considerably shortened ground force of fire-fighters has been necessitated. And this, the minister pointed out, is being undertaken after a year of the greatest number of fires in the history of the department. In 1931, Mr. Finlayson pointed out, the department conquered 1,800 fires, although less than 100,000 acres of timber were destroyed. This had resulted from a finely perfected force working rapidly and catching the fires before they had reached uncontrollable proportions. Last fall, however, he said, twelve pilots had been released from the service and they would not be taken back this summer because of lowered expenditures.

Notes and Jottings of the Trade

Damage estimated at between $8,000 and $10,000 was caused to the electrical equipment and the motor room of the Thunder Bay Paper Company plant at Port Arthur by fire which originated in the wire leading from the transformers to the motor room. The plant had been idle for several months.

The death took place a few days ago of one of Toronto's leading business men in the person of Ralph King, director of the Dominion Glass Company, and also on the board of directors of the Hinde & Dauch Paper Company of Canada, Ltd. Deceased passed away in Bermuda while on his way home after a vacation spent in the West Indies.

The Wedlock Paper Bag Company, Ltd., was recently granted a charter to conduct business as manufacturers, dealers and exporters of all kinds of paper, paper board, pulpwood, wood pulp, etc., with headquarters in Toronto. The authorized capital is $40,000.

Many friends will regret to learn of the death of Andrew W. Muir, superintendent of the paper mill of J. C. Wilson, Ltd., at Lachute, Que. Mr. Muir, who passed away from an attack of pneumonia, was born in 1867 and resided for many years in East Angus. He is survived by his widow, one son and three daughters.

WOOD PULP
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Manufacturers of

SUPERCALENDERED
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Sixth and Chestnut Sts., Philadelphia, Pa.

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STANDARD WET MACHINES

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THE A. D. WOOD SAVEALL, THICKENER, WASHER AND WATER SCREEN

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PULP GRINDERS, THREE OR FOUR POCKET (Roller Bearings)

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OLIVER-ROGERS WET MACHINE

RAY SMYTHE, 301 PARK BLDG., PORTLAND, ORE.
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SHARP — STRONG — TOUGH

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OTHER SPECIALTIES

WARREN IMPROVED CALENDER With flexible blades, Universal Adjustment and Control, Patented — DOCTORS

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AND OTHER PAPER MILL MACHINERY

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IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

SUMMARY

WEEK ENDING APRIL 9, 1932

Cigarette paper	1102 cs.
Wall paper	60 rolls, 3 bls., 7 cs.
Hanging paper	1 bl., 1 cs.
News print	6156 rolls
Printing paper	19 crates, 5 cs.
Decalcomania paper	7 cs.
Drawing paper	7 cs.
Filter paper	7 cs.
Parchment paper	20 cs.
Colored paper	8 cs.
Baryta coated paper	134 crates, 1 cs.
Metal coated paper	32 cs.
Surface coated paper	75 cs.
Coated paper	2 cs.
Tissue paper	13 cs.
Writing paper	2 cs.
Envelopes	3 bls., 2 cs.
Mouthpiece paper	27 rolls
Stencil paper and ink	5 cs.
Card board	248 cs.
Miscellneous paper	273 bls., 272 cs.

CIGARETTE PAPER

American Tobacco Co., De Grasse, Havre, 300 cs.
Standard Products Corp., De Grasse, Havre, 117 cs.
Liggett & Myers Tobacco Co., De Grasse, Havre, 30 cs.
P. J. Schweitzer, De Grasse, Havre, 4 cs.
Champagne Paper Corp., McKeesport, Havre, 296 cs.
Champagne Paper Corp., Ile de France, Havre, 135 cs.
De Manduit Paper Corp., Ile de France, Havre, 20 cs.
American Tobacco Co., Ile de France, Havre, 190 cs.
P. J. Schweitzer, Ile de France, Havre, 10 cs.

WALL PAPER

R. F. Downing & Co., Aurania, Southampton, 1 bl.
Irving Trust Co., New York, Hamburg, 7 cs.
Globe Shipping Co., New York, Hamburg, 2 bls.
Phoenix Shipping Co., Sacandaga, Rotterdam, 60 rolls.

HANGING PAPER

R. F. Downing & Co., De Grasse, Havre, 1 cs.
Universal Car Loading Co., De Grasse, Havre, 1 bl.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 4752 rolls.
Jay Madden Corp., Gen. von Steuben, Bremen, 861 rolls.
Perkins Goodwin & Co., Gen. von Steuben, Bremen, 42 rolls.
Perkins Goodwin & Co., New York, Hamburg, 391 rolls.
Baldwin Paper Co., New York, Hamburg, 110 rolls.

PRINTING PAPER

E. Dietzgen & Co. Inc., Aurania, Southampton, 19 crates.
E. Dietzgen & Co. Inc., New York, Hamburg, 1 cs.
International F'd'g Co., E. Francqui, Antwerp, 4 cs.

DECALCOMANIA PAPER

C. W. Sellers, New York, Hamburg, 7 cs.

DRAWING PAPER

P. Puttman, Westernland, Antwerp, 1 cs.
H. Reeve Angel & Co. Inc., American Trader, London, 2 cs.
Favor Ruhl & Co., American Trader, London, 4 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Trader, London, 7 cs.

PARCHMENT PAPER

F. C. Strype, E. Francqui, Antwerp, 5 cs.
F. C. Strype, New York, Hamburg, 15 cs.

COLORED PAPER

S. Gilbert, Gen. von Steuben, Bremen, 5 cs.
F. Murray Hill Co., Pr. Harding, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 134 crates, 1 cs.

METAL COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 24 cs.
Globe Shipping Co., New York, Hamburg, 3 cs.
K. Pauli Co., New York, Hamburg, 1 cs.
Taub Hummell & Schnall, New York, Hamburg, 4 cs.

SURFACE COATED PAPER

P. Puttman, Westernland, Antwerp, 5 cs.
Gevaert Co. of America, E. Francqui, Antwerp, 64 cs.
International F'd'g Co., New York, Hamburg, 5 cs.
Phoenix Shipping Co., New York, Hamburg, 1 cs.

COATED PAPER

Happel & McAvoy, New York, Hamburg, 2 cs.

TISSUE PAPER

Meadows Wye & Co., Adriatic, Liverpool, 1 cs.
Old Master Paper & Pulp Co., Pr. Harding, Hamburg, 12 cs.

WRITING PAPER

Globe Shipping Co., De Grasse, Havre, 2 cs.

ENVELOPES

Burroughs Wellcome & Co., Adriatic, Liverpool, 3 bls.
Simfred Co. Inc., New York, Hamburg, 2 cs.

MOUTHPIECE PAPER

G. A. Henshaw & Son, New York, Hamburg, 27 rolls.

STENCIL PAPER AND INK

Arlac Dry Stencil Co., American Importer, Hamburg, 5 cs.

CARD BOARD

Coty Processing Co., De Grasse, Havre, 46 cs.
E. Dietzgen & Co. Inc., Gen. von Steuben, Bremen, 2 cs.
American Express Co., New York, Hamburg, 200 cs.

MISCELLANEOUS PAPER

Roger & Galet, De Grasse, Havre, 6 cs.
Jay Madden Corp., American Importer, Hamburg, 154 cs.
——, Gen von Steuben, Bremen, 265 bls.
W. Bersch, Gen. von Steuben, Bremen, 17 cs.
Keller Dorian Paper Co., Ile de France, Havre, 2 cs.
Standard Products Corp., Ile de France, Havre, 89 cs.
C. Steiner, New York, Hamburg, 8 bls.
C. L. Voorhees, Tai Ping Yang, Yokohama, 4 cs.

RAGS, BAGGINGS, ETC.

A. W. Fenton Inc., American Importer, Hamburg, 63 bls. rags.
Amderutra, American Importer, Hamburg, 45 bls. scrap cottons.
J. Damato, McKeesport, Havre, 140 bls. rags.
The Armstrong Co., McKeesport, Havre, 239 bls. rags.
Continental Bank & Trust Co., McKeesport, Havre, 150 bls. bagging.
Martanco Stamp Co., Adriatic, Liverpool, 10 bls. waste paper.
Chase National Bank, Westernland, Antwerp, 109 bls. dry paste.
——, Extavia, Genoa, 39 bls. rags.
T. D. Downing & Co., Transylvania, Glasgow, 81 bls. bagging.
——, Estrella, Barcelona, 151 bls. rags.
National City Bank, Estrella, Barcelona, 200 bls. rags.
E. J. Keller Co. Inc., Pr. Harding, ——, 54 bls. rags.
E. J. Keller Co. Inc., Bellflower, ——, 68 bls. bagging.

GLUE STOCK

E. Weil Inc., McKeesport, Havre, 332 bdls.

OLD ROPE

——, Keifuku Maru, Hamburg, 72 coils.

CASEIN

D. C. Andrews & Co., New York, Hamburg, 60 bags.

WOOD PULP

A. Giese & Son, New York, Hamburg, 60 bls. wood pulp.
A. Giese & Son, Sacandaga, Rotterdam, 60 bls. wood pulp.
Castle & Overton Inc., Sacandaga, Rotterdam, 280 bls. wood pulp, 56 tons.
Castle & Overton Inc., New York, Hamburg, 140 bls. wood pulp, 28 tons.
E. J. Keller Co. Inc., Keifuku Maru, ——, 365 bls. wood pulp.

WOOD FLOUR

The Burnet Co., Sacandaga, Rotterdam, 242 bls., 12100 ks.

BOSTON IMPORTS

WEEK ENDING APRIL 9, 1932

Atkinson Haserick & Co., Excalibur, Genoa, 2 cs. paper.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 9, 1932

American Over-Ocean Corp., Tai Ping Yang, Kobe, 75 bls. rags.
Hoffman Lion Mills, Tai Ping Yang, Kobe, 50 bls. rags.

NORFOLK IMPORTS

WEEK ENDING APRIL 9, 1932

R. J. Reynolds Tobacco Co., McKeesport, Havre, 80 cs. cigarette paper.

Charles Lincoln Wilkins Dead

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 4, 1932—Charles Lincoln Wilkins, for many years identified with the paper box industry, died March 29 at his residence, 1284 Beacon street, Brookline, Mass., after an illness of about two years. He had lived in Newtonville, Mass., until four years ago. Mr. Wilkins was born in Amherst, N. H., October 23, 1861, the son of Aaron and Martha (McClure) Wilkins. He came to Boston in early life and for forty years was treasurer of the Wilkins Paper Box Company, Inc., at 65 Beverly street, this city. He was a member of the Dalhousie Lodge of Masons.

He is survived by his wife, who was Emogene Dean, of Somerset, Mass.; a son, Howard C. Wilkins, of Newton Highlands, and of the Wilkins Paper Box Company; a daughter, Mrs. Norman H. Deane, of Newtonville; and a brother, Marion W. Wilkins, of Newtonville.

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A FIRST REQUISITE

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Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

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Mines: Gulf, Newgulf and Long Point, Texas

The B.C. QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

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Chemipulp Process:

FOREMOST IN SERVING CHEMICAL PULP MILLS

TO — Improve efficiency.
— Reduce costs.

BY — Modern scientific methods.
— Wide operating experience.

Hot SO_2 Liquor & Gas Recovery—eliminates expensive cooling equipment — recovers heat — saves steam — eliminates acid dilution from steam condensation — reduces boiler load peak — strengthens acid — accelerates penetration — cuts sulphur — increases yield and capacity — has been termed, "the all around fixer" for SULPHITE making.

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DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, April 13, 1932.

Demand for the various standard grades of paper was listless during the past week and sales were generally below the level of the corresponding period of the preceding year. Inquiries for future needs, however, are fairly numerous, some of which may materialize into good business. Prices are holding to previously quoted levels, in most instances.

The news print market continues quiet. Production in the United States and Canada is being maintained in sufficient volume to take care of current requirements. Efforts are still being made to stabilize the industry and rumors of mergers of leading interests are persistent. The price situation is practically unchanged.

Conditions in the paper board market are showing little sign of improvement and demand for the various grades is light. Prices are fairly steady. The fine paper market is irregular. Steadiness rules in the coarse paper market and kraft wrapping paper prices are well maintained at the recently advanced levels.

Mechanical Pulp

Although demand for both domestic and imported ground wood pulp is restricted, production at home and abroad has been curtailed and the industry is considered to be in a fairly strong statistical position. The contract movement is fairly satisfactory. No further price changes have been reported.

Chemical Pulp

While trading in the chemical pulp market during the past week was light, the outlook for the future will be affected by the news from Sweden to the effect that on April 1 the workers at most of the pulp mills declared a strike, following their refusal to accept reduced wages. Should this strike continue it may result in serious curtailment of pulp manufacture.

Old Rope and Bagging

Some improvement was noticed in the old rope market. Demand for both domestic and imported old manila rope was fairly persistent. Small mixed rope, however, continues dull. The bagging market was moderately active. Gunny and roofing bagging are in seasonal request. There were no radical price changes.

Rags

Paper mill interest in the domestic rag market is restricted at present. Demand for most of the grades of cotton cuttings is comparatively light. Roofing grades are fairly active. Prices are nominal. Imported rags are moving slowly, with the exception of roofing rags, which are moderately active. The price situation continues unsatisfactory.

Waste Paper

Board mill demand for the lower grades of paper stock is fairly well maintained. Offerings are not excessive. Prices are generally steady and unchanged, strictly folded news and No. 1 mixed paper, in particular, holding up well. The better grades of paper are displaying some seasonal activity, although sales are below normal.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various grades of twine is fairly satisfactory considering general business conditions. Prices are holding up fairly well although there are reports of concessions on extra desirable orders.

Indianapolis Demand Spotty

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 11, 1932—Paper demand in this territory is considerably spotted and there appears to be no immediate chance of improvement. Wrapping paper dealers had a fair Easter trade, the first real trade they have had this year, but since that time business has been very poor. The fine paper demand is uncertain and there is considerable hesitation among consumers as just what to do. It is fairly certain that stocks will be bought on a hand to mouth basis the same as for the past many months. Book manufacturers are buying only in about the same quantities as last year.

Perhaps the loudest note of optimism is coming from the jobbers of roofing papers. Orders are not so heavy, but the volume of inquiries has been encouraging and there is hope for more business than was done last year. The strong propaganda for loosening up hoarded money, particularly for remodeling purposes, is stimulating the building industry and the roofing men expect to feel part of this stimulation. The manufacturers themselves, through new selling policies have made the retailers feel better than they did a couple of years ago. Local reports show the manufacturers are back in production, at least part time, and after a suspension in most cases for weeks.

Inquiries now are being received in large number for summer specialties. Paper napkins, cups, plates and the like are going to prove good sellers for early summer. One reason was that by close buying the dealers closed the last season with stocks lower than in years and the first real picnic weather will cause an immediate demand from them.

Local container men say business is bad. The largest plant here is out of production most of the time. They are hoping, however, that shortly the ice cream trade will make for more demand.

Klein Bros. Paper & Twine Co. Chartered

ALLENTOWN, Pa., March 27, 1932.—Klein Bros. Paper & Twine Company has been incorporated under the laws of the State of Pennsylvania. The subscribers are Gerson Klein, Joel Klein and Rebecca Klein, all of this city. Gerson and Joel Klein are designated as holding one share of stock each, and Rebecca Klein eight. The charter sets forth that the purpose of the corporation is "manufacturing, buying, selling and dealing in paper, twine, novelties, dry goods, notions, and similar articles."

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

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SIXTY years ago we did not have all the facilities that we have today, such as large factories, up-to-date application laboratories, and a working force devoting all its time to the Paper Industry.

If you are one of the few who do not know H. & M. Colors, Quality and Service, take it up with our representative on his next visit, or if you prefer, write or wire us.

We want you to come to us for any assistance that we can offer you.

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(PAPER MAKERS' ALUM)

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In Canada: The Nichols Chemical Company, Ltd. Montreal, P. Q.

Also BAKER & ADAMSON C.P. ACIDS..REAGENTS *and* FINE CHEMICALS

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of Paper Trade Journal published weekly at East Stroudsburg, Pa., for April 1, 1932, State of New York, County of New York, ss.: Before me, a Notary Public in and for the State and county aforesaid, personally appeared Geo. S. Macdonald, who having been duly sworn according to law, deposes and says that he is the Publisher of the Paper Trade Journal and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, George S. Macdonald, 10 East 39th st., New York, N. Y. Editor, Henry J. Berger, 10 East 39th st., New York, N. Y. Managing Editor, Henry J. Berger, 10 East 39th st., New York, N. Y. Business Manager, George S. Macdonald, 10 East 39th st., New York, N. Y. 2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Lockwood Trade Journal Co. Inc., 10 East 39th st., New York, N. Y. Stockholders: George S. Macdonald, 10 East 39th st., New York, N. Y.; Arthur S. Zabriskie, 10 East 39th st., New York, N. Y. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. 5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ..... (This information is required from daily publications only.)

Geo. S. Macdonald, Signature of Publisher,
Sworn to and subscribed before me this 31st day of March, 1932
(Seal) Max Gross
Notary Public New York Co. No. 243
New York Co. Reg. No. 2-G-179
(My commission expires March 30, 1934.)

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Warehouses in Principal Cities **Representatives Everywhere**
IN THE UNITED STATES and CANADA

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, April 13, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton; while the powder is selling at from 3¼ cents to 3⅜ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are going forward at a satisfactory pace. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is quoted at 6½ cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8¼ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Most of the business transacted in the caustic soda market was along routine lines. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is only moderately active. Contract shipments are moving in fair volume. Imported china clay is still selling at from $11 to $13 per ton; while domestic paper making clay is offered at from $7 to $11 per ton, at mine.

CHLORINE.—Demand for chlorine is light at present. The contract movement is fairly heavy, considering prevailing conditions. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—No radical changes have been reported in the rosin market. The grades of gum rosin used in the paper mills are quoted at from $3.75 to $4.00 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.00 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market is listless. Prices are holding to schedule, however. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Supplies of soda ash are going forward to the paper mills at a normal pace. Demand is fairly persistent. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is exhibiting a fairly strong undertone. Contract shipments are moving regularly. Prices are holding to formerly quoted levels. Special paper making starch is selling at $2.54, in bags; and at $2.81 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is fairly active. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is still quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contract; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Some improvement was noticed in the talc market. Demand is more buoyant and the contract movement is normal. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is sell- at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	3.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —
(Delivered New York)		
News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	24.00	@27.00
Straw	34.50	@45.00
Chip	24.00	@27.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	30.00	@32.50
Sgl. Mla. Lt. Chip	35.00	@37.50
(F. o. b. Mill)		
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	20.00	@22.00
Dry	22.00	@24.00
(F. o. b. Mill)		
No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.50	@ 1.65
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	2.00	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.60	@ 2.75
(Delivered Paper Mills)		
Soda Bleached	2.50	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.50	@ 5.00
New White, No. 2	3.50	@ 4.00
Silesias No. 1	3.50	@ 4.00
New Unbleached	6.00	@ 6.50
New Blue Prints	3.25	@ 3.50
New Soft Blacks	2.50	@ 3.00
Blue Overall	3.50	@ 4.00
Fancy	2.50	@ 3.00
Washables	1.75	@ 2.00
Mixed Khaki Cuttings	3.00	@ 3.25
Pink Corset Cuttings	Nominal	
O. D. Khaki Cuttings	3.50	@ 3.75
Men's Corduroy	1.50	@ 2.00
New Mixed Blacks	2.00	@ 2.25

Old Rags

White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.75	@ 5.00
New Light Oxfords	4.00	@ 4.25
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.90	@ 2.00
German Blue Linens	1.80	@ 1.90
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.10	@ 1.20
Domestic	1.15	@ 1.25
Wool Tares, light	.90	@ .95
Wool Tares, heavy	.90	@ .95
Bright Bagging	.85	@ .90
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.55	@ 2.75
Hard, white, No. 2	1.90	@ 2.00
White envelope cuttings	2.05	@ 2.15
Soft, white, No. 1	1.70	@ 1.80
Flat Stock—		
Stitchless	.70	@ .80
Overissue Mag.	.70	@ .80
Solid Flat Book	.60	@ .70
Crumped No. 1	.45	@ .50
Solid Book Ledger	1.75	@ 1.85
Ledger Stock	.60	@ .70
New B. B. Chips	.20	@ .30
Manilas—		
New Env. Cut	1.75	@ 1.85
New Cuttings	1.40	@ 1.50
Extra No. 1 old	1.05	@ 1.15
Print	.45	@ .50
Bogus Wrapper	.45	@ .50
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	1.00	@ 1.10
News—		
No. 1 White News	1.60	@ 1.65
Strictly Overissue	.35	@ .45
Strictly Folded	.30	@ .35
No. 1 Mixed Paper	.20	@ .25
Common Paper		Nominal

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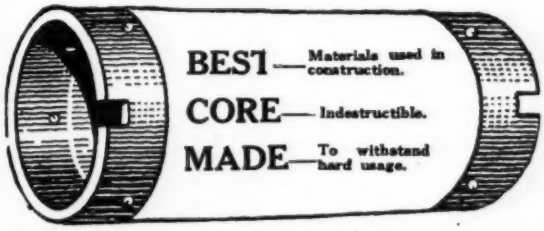

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HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¼	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.05	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.40	@	1.45
Ledger & Writings	.55	@	.65
Solid Books	.50	@	.55
Blanks	1.15	@	1.20
Kraits	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.45	@	.50
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.05½	@	.06
New White, No. 2.	.04	@	.04½
Light Silesias	.04	@	.04½
Silesias, No. 1	.04	@	.04½
Black Silesias, soft.	.04	@	—
New Unbleached	.05½	@	.06
Washable, No. 1	.02	@	.02½
Blue Overall	.04	@	.04½
Cottons—According to grades—			
Washable, No. 2	.01½	@	.02
New Blue	.01¾	@	.02
Fancy	.02	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O.D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.50
M. G.	3.50	@	4.00
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1	1.00	@	1.10
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.10	@	2.20
No. 2 Hard White.	1.75	@	2.10
No. 1 Soft White	1.50	@	1.70
No. 2 Soft White	1.40	@	1.50
No. 1 Mixed	.45	@	.55
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.20	@	1.30
Writing Paper	.60	@	.75
No. 1 Books, heavy	.60	@	—
No. 2 Books, light	Nominal		
No. 1 New Manila	1.25	@	1.50
No. 1 Old Manila	1.00	@	1.25
Print Manila	.45	@	—
Container Manila	.35	@	.40
Old Kraft	.90	@	1.00
Common Paper	.20	@	—
No. 1 Mixed Paper	.15	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.25	@	.35
Overissue News	.40	@	.50
Old Newspaper	.30	@	.35

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03¼	@	.03½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.50	@	1.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.40	@	1.65
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.00	@	1.15
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.80	@	.90
White Blank News	1.20	@	1.30
Kraft No. 1	.75	@	.85
Manila	.80	@	.90
No. 1 Mixed Paper	.15	@	.17½
Print Manila	.35	@	.40
Overissue News	.40	@	.45
Old Newspapers	.27½	@	.32½
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.22½	@	.27½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.10	@	1.15
Domestic	.75	@	.85
Manila Rope—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Transmission Rope	—	@	.90
Mixed String	—	@	.30
Jute Rope	—	@	.85
Jute Carpet Threads	.40	@	.60
Bleachery Burlap	—	@	2.25
Scrap Burlap	.65	@	.80
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	1.00
Scrap Sisal for shredding	—	@	1.25
Wool Tares, heavy	.80	@	90
New Burlap Cutting	1.00	@	1.25
Australian Pouches	—	@	1.50
Heavy Baling Bagging	1.25	@	1.35
Paper Mill Bagging	.60	@	.70
Bagging No. 2	—	@	.40
No. 1 Burlap	—	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.04½	@	.04¾
New White No. 2.	.03	@	.03¾
Silesias No. 1	.04½	@	.05
New Black Silesias	.02½	@	.03¼
New Unbleached	.04½	@	.05¼
Fancy	—	@	.03¾
Washable	—	@	.03½
Cottons—According to grades—			
Blue Overalls	—	@	.05
New Black, soft	.04	@	.04¼
Khaki Cuttings	.03	@	.03¼
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.25	@	2.50
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	1.00	@	1.25
Thirds and Blues—			
Repacked	—	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.50	@	3.00
Roofing Stock—			
No. 1	.58	@	.60
No. 2	.48	@	.50
No. 3	.43	@	.48

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	.60
New No. 1 White Shirt Cuttings	5.00	@	5.50
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.10	@	1.15
Old Linsey Garments	.70	@	—

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10½	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.50	@	—
Soft White	2.25	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.65	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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TABLE OF CONTENTS

Copyright, 1932, by the Lockwood Trade Journal Co., Inc.

Prairie State Paper Mills To Start 11
To Exhibit Paper Making Equipment 11
Jewell & Peck Paper Corp. Starts 11
Philadelphia Paper Demand Irregular 12
Paper Trade Association Activities 12
Wood Pulp Tariff Duty Opposed 13
More Common Use for Paper 13
Kimberly-Clark Corp. Reelects Officers 14
Paper Mill Classes Planned 14
Forest Fire Precautions 14
The Turbo-Mixer 14
Economic Conference to Meet in Ottawa 15
O. W. Meilke Made General Manager 15
Ontario Manufacturers Fairly Active 16
Abitibi Power Project up to Schedule 16
Chicago Market Unchanged 18
Work of Kraft Institute 18
New York Trade Jottings 22
W. J. Robertson Heads Heller & Merz 22
Construction News 24
Program for Northwest Meeting 26
New Rogers Utility Grinder 26

Editorial 28

Confer Regarding Mill Wages 29
Tucker Opposes Wood Pulp Tariff 29
Binders Board Standards Postponed 29

Technical Section

Pulp and Paper Industry Literature Review .. 31
Bausch & Lomb Join TAPPI 34
The Integrated Industrial Power 35
Water Solubility of Wood and Pulp 41
Recent Trends in De.ign of Paper Machinery 42

Cost Section 45
Obituary 48
Transfer Property to Upco Corp. 48
New Paper Machinery Co. Formed 50
Imports of Paper and Paper Stock 52
New York Market Review 54
Miscellaneous Markets 56
Market Quotations 56

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